PARTICIPATORY DESIGN OF VISUAL PRODUCT IDENTITY CONCEPTS

Towards a User Experience Styleguide

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ABSTRACT

With each passing year, the market is becoming more saturated with similar products and services. Companies are seeking new means of differentiation and realizing the advantages of utilizing experience driven thinking in their development processes. This research focuses on investigating the possibilities of employing a participatory design approach for designing visual product identity concepts, especially in a business-to-business environment. Research objectives are met through the study of relevant literature and the implementation of practical research. The latter is carried out through a case study with a Finnish company, Fastems, using in-depth interviews, workshops, field visits and co-design sessions with their employees. By utilizing findings gathered from these activities, two product identity concepts are developed. These concepts are evaluated with the case company's current employees, by conducting a global online survey. The main conclusions to be drawn from this work are that company-wide experience goals can be effectively defined by employing a participatory approach, collaborating with the company's own employees; and these experience goals can be utilized to create new product identities. This research suggests further research to be conducted about designing the platform of the styleguide, so that the implementation of the developed content could be accelerated.

Keywords: Product Identity, Style Guide, Participatory Design, User Experience Design, Business-to-Business.

CONTENTS

1. INTRODUCTION

This master's thesis work presents an investigation of employing a participatory design approach for developing visual product identity concepts, using a case study done in collaboration with a Finnish company, Fastems. Participatory design approach is chosen to involve the case company in the development process, to make the employees feel responsible and motivated. Consequently, new visual product identity is expected to be a part of a more comprehensive user experience styleguide, which will be developed by the company in the future.
The content of this thesis consists of 5 chapters, beginning with an introduction. This chapter gets the reader accustomed with the topic at hand, describes the objectives and puts forward the research questions that will be answered throughout the project. Moreover, relevant background information about the stakeholders and the case study is presented. The second chapter is called background research. This chapter aims to generate a cohesive understanding of the project and its context. It mainly describes the literature review on two main areas, which are user experience and style. Then, it presents the findings from reviewing other successful brand's guidelines and materials provided by the case company. Following chapter, which is titled concept development, portrays a comprehensive description of the task at hand and goes into details of the methods used, as well as the challenges faced along the way. After these descriptions, two design concepts that are developed as a result are illustrated. Chapter 6 introduces the evaluation process with the online survey and discusses

its results. Finally, last chapter concludes the thesis work with a discussion and portrays the potential future directions for the project.

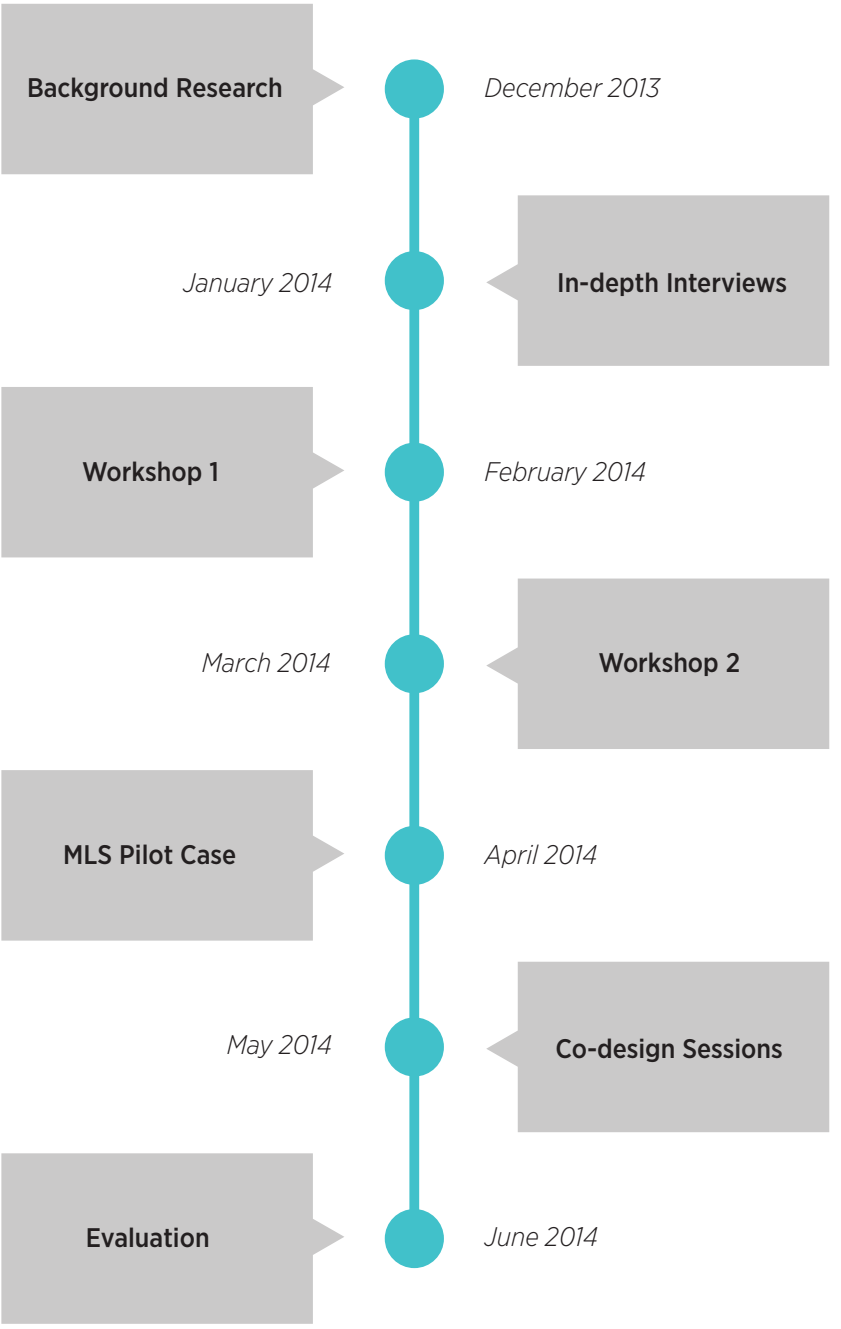


Figure 1.1
Project Timeline

1.1 UXUS Project

UXUS (User Experience & Usability in Complex Systems) is a research programme organized by FIMECC (Finnish Metals and Engineering Competence Cluster), and it brings together top Finnish researchers and companies to collaborate on undertaking innovative projects and improving the industry. Projects that are part of this programme mainly focus on user experience, usability and industrial design. The overall target of the programme is to increase the competitiveness of the Finnish metals and engineering industry (MEI) by challenging the present mindset and renewing the practises radically[1].

Finnish metals and engineering industry is already capable of providing products with high usability. However, there indeed are unused potentials that can be revealed by having deeper understanding of users and customers, for the benefit of better satisfying business needs (Roto et al., 2012). UXUS programme, therefore, aims to create more novel initiatives by introducing more human-centred approaches to the traditional business culture. As a result, newly developed research and development practises are expected to broaden the design focus from mere products to personalised user/customer experiences, especially in complex systems.

UXUS project objectives are:

- Developing a broader understanding of usability and user & customer experience in complex systems
- Creating platforms for more effective collaboration and communication with users & customers throughout projects
- Challenging the current mindset and broadening the idea of design from mere product design to more towards human-centred design and personalized user experience design

Throughout the UXUS programme, different projects are run simultaneously as parts of different work packages. In total, there are four work packages that are linked. This master's thesis work is a part of work package three, which focuses on "radical user experience applications" for the purpose of renewing operational

[1] *http://uxus.fimecc.com, 'Finnish Metals and Engineering Competence Cluster.'*

concepts and improving working environments with a user experience-driven approach. Accordingly, the development of a user experience styleguide is expected to help the case company by providing guidance on designing products and sharing good examples on what user experience could mean in practise.

1.1.1. Current Situation in B2B

With each passing year, the market is becoming more and more mature, filled with companies providing similar products or services. To be able to survive in this intensely competitive environment, companies are forced to bring every management weapon into the battle (Wise & Zednickova, 2009). Branding has always been an important approach in order to stand out in the crowd especially in the consumer markets. However, the nature and importance of it in the business-to-business markets is rather 'neglected' and 'under-researched' (Mudambi, 2002).

The main purpose of branding is differentiation, and the importance of it has never been bigger, especially in the business-to-business (B2B) environments (Hague & Jackson, 1994). Traditionally, B2B companies have been focusing on convincing their customers into purchasing their offerings by placing emphasis mainly on the functional features. These features can also be called 'measurable parameters', since it is easier to estimate their return of investment (Wise & Zednickova, 2009). However, B2B marketers started to realize the importance of creating emotional connections with customers to be able to add values to their offerings, be it products or services (Lynch & De Chernatony, 2004). As Shaw et al. (1989) states, when encountered with a new product that asserts more benefit, customers first evaluate the functional features of the product to understand whether it serves its purpose well. Only then the intangible attributes of the offerings are examined.

When both tangible (functional) and intangible (emotional) attributes are orchestrated in harmony, companies can strengthen their brands and successfully satisfy their customers' needs. It is crucial to keep in mind for the B2B companies that the competitors can be able to keep up with the features and match the level of quality in their offerings. However, it is much more challenging to compete with a company that serves personal, emotional and special experiences (Brandt &

Johnson, 1997).

In the end, experience is what it is all about. As Schifferstein stated almost all the human activities are one way or another associated with experiences, and experience-driven innovation can improve the interaction between companies and their stakeholders (Roto et al., 2012, p. 11).

1.1.2. Towards Experience Economy

Economy has been evolving over the years. Specifically through the past decade, it has been more evident that the world is shifting from an industrially driven economy towards a people-driven economy, where consumers are on the focus of all actions (Gobé, 2009). At first, during industrial economy, manufacturing standardized products that serves users' needs was enough for companies to make profit and survive in the market. Afterwards, it was time for service economy, where companies had to provide tailored services that offer benefits to their customers. However, the world soon became oversaturated with similar goods and services, and to be able to sustain economic growth different value creation methods were needed (Pine & Gilmore, 1998). Companies then have become aware that manufacturing undifferentiated goods and providing similar services will not be sufficient. Instead, designing experiences has been becoming the next step to take in the highly competitive market. (Väänänen-Vainio-Mattila et al., 2008). Thus, as Pine calls it, the world entered the era of experience economy.

Experiences have always been around, but they have been unexploited means of economic input so far (Pine & Gilmore, 1998). Companies were quick to realize and jump in on this train of providing experiences for the users. Since consumer market is rather fast evolving, business-to-consumer (B2C) companies were first to recognize the importance of providing experiences to their users. For instance, BMW recently updated their slogan from 'ultimate driving machine' to 'sheer driving pleasure' in its advertising campaigns. In this case, BMW's approach emphasizes the joyful experience that users have when driving their cars, rather than the fact that their cars being the fastest or strongest products in the market. This example supports the claim that more focus has been put on the experiences,

even by the companies which have long been proud of their technology-driven products (Roto et al., 2013).

Along with B2C, B2B companies are catching up with this trend as well. Since users' involvement in the B2B sales process is rather insignificant, it has been considered challenging to design for experiences, specifically in the context of metal and engineering industries (Roto et al., 2012). However, this is the very misconception that UXUS project have set out to challenge.

1.2. Collaboration with Fastems

This master's thesis study is run in collaboration with Fastems, which is one of the many companies that participate in the UXUS project. Therefore, participants of the interviews, workshops and other co-creation sessions are chosen from its employees.

Fastems is a privately-owned Finnish company founded in 1901. They have an annual turnover of 105 million euros and 530 employees worldwide. It supplies flexible manufacturing systems (FMS) and robot cells to the metal cutting industries to automate the manufacturing and finishing processes. Their strength comes from their ability of working together with all the machine tool manufacturers around the world, integrating their products for providing leading automation solutions. They have customers from a wide variety of industries, ranging from aerospace to construction & mining industries[2].

1.2.1. Brand Revision Process

Fastems has established a strong bond with customers thanks to its satisfactory products and trustworthy service. In today's economy, it is much more challenging to stand out in the crowd only by providing first-class products and services. In such circumstances, branding provides the additional push that is required by the companies to secure their position in the market. However, as Tuomaala (2014, p. 44) found out, "despite of its long history, [Fastems] has not yet extensively studied its brand nor formed a holistic strategy for brand management". Therefore,

[2] *http://www.fastems.com/en/company, 'Fastems Factory Automation.'*

Fastems is through a brand revision process and are currently working on the implementation phase.

Going through a rebranding is a significantly challenging process. It is much more than a concept developed by the marketing department and followed by the rest of the employees. Even when the new branding initiative at hand is communicated carefully and thoroughly, companies can still run into troubles along the way (Wise & Zednickova, 2009). Needless to say, the challenge is even greater in the industrial companies. By participating in the UXUS programme, Fastems is aiming to tackle these challenges that emerge along the process of rebranding by undertaking a user experience-driven approach.

1.2.2. Multi-level System Case

Fastems' flagship products are flexible manufacturing systems (FMS). These systems make it possible to automate the production line by integrating machine tools, thus enable unmanned production. Using an FMS is rather easy and all that the operator needs to do is to submit the order and its due date. The system takes care of the rest by itself and informs the operator once the task has finished.

There are three different types of flexible manufacturing systems that Fastems provides. First one is "flexible pallet container (FPC)", which is an entry-level system. As the name suggests, the whole system is built in a container which includes all the equipment required for an automated pallet storage and handling system. Each FPC is designed for a specific type of machine tool. Second system offers medium-sized solutions, and is called "flexible pallet magazine (FPM)". This system is configurable and offers more versatility to the customers. Since it is based on standard modules with configurable options, it is an ideal and easily affordable solution for machining workshops to increase their automation level and unmanned production. Finally, the third system is called "multi-level system (MLS)", and it is the most versatile system that is available in a wide range of configurations. The main strength of this system is its ability of being tailored to customer's needs by integrating unlimited number and variety of machine tools. It has a large storage capacity and requires very minimal floor space. Moreover,

it allows customers to increase their productivity and update the system when needed.

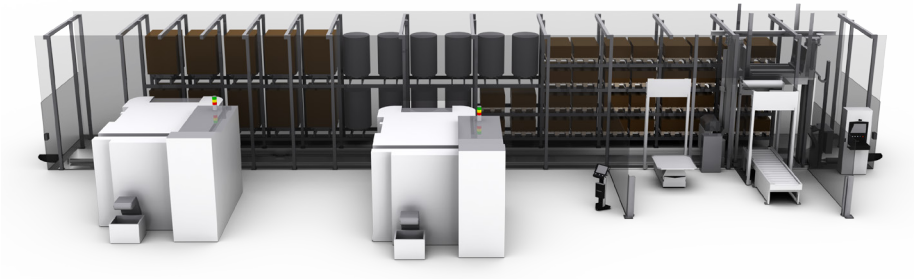


Figure 1.2
3D Render of a Multi-level system

Figure 1.3 - 1.4
Photos of a Multi-level system

Some of the main advantages of the multi-level systems:

- Unlimited machine tool integration (any number, any model, any pallet size)
- Optimal utilization of the available space
- Multiple pallet sizes in a single system
- Tailored for customers' needs
- Easy to extend and modify

Mainly due to the reasons listed above, multi-level systems are Fastems' flagship products. Therefore, the case study will be focusing on these systems.

1.3. Design Approach

As it will be explained in more detail in the literature review section, research shows that user experience-driven differentiation can bring a clear competitive edge to companies (Väänänen-Vainio-Mattila et al., 2008). Accordingly, by participating in the UXUS research programme, Fastems takes the first step to go through the challenging brand revision phase with a user experience oriented mindset. Therefore, a similar approach will be employed to develop a user experience styleguide. However, it is important to note here that the main focus of this study will fall on designing visual product identity concepts. Mainly due to time constraints, user experience styleguide will not be developed throughout this study.

User experience design is not driven by a single discipline, and the methods employed in this study are also borrowed from a wide variety of different disciplines. For instance, a participatory design approach is utilized throughout the project. In participatory design, the role of the designer becomes indistinct and the user's role becomes more essential. Participants - users, employees, customers, designers - are brought together to get actively involved in the design process. Therefore, we can design 'with' users, rather than 'for' users, to better meet their needs (Sanders, 2002). This approach provides the opportunity of involving the case company's employees in the process, to make them feel motivated and responsible in developing the concepts collaboratively. For this purpose, workshops and co-design sessions are conducted in which a number of people from different

backgrounds are involved.

1.3.1. Methods

There is a wide variety of research methods in the field of user experience, ranging from lab-based usability studies to more recently developed ones such as AttrakDiff, which measures both pragmatic and hedonic qualities of a product (Hassenzahl, 2003). It is crucial to choose the right methods that best benefit the project and effectively combine the insights gathered from using multiple methods. The methods utilized in this project are briefly listed below. Each of them will then be explained in detail in the following chapters.

Literature Review: In a scientific research project, it is essential to review the prior research done in the related fields. It helps researchers to gain a broader understanding about the research subject at hand. It also facilitates the process of framing the topic, by pointing out the areas where further research is needed. My literature review guided me through the decision making process especially on what topics to focus on this styleguide development study.

In-depth Interviews: In-depth interviewing is one of the main data collection techniques used in qualitative research and it involves conducting intensive individual interviews with a small number of respondents to explore their feelings and perspectives on a particular idea, program, or situation (Boyce & Neale, 2006). In this project, this method is utilized to better understand the case company and some of the key users of the styleguide.

Affinity Diagram: Affinity diagram is a method that organizes the collected data into a wall-sized hierarchical diagram, by grouping them according to relevance (Holtzblatt et al., 2004). In this project, this method acts as a tool that expresses the interviewee's problems and needs; and documents all the insights gathered from the in-depth interviews, which would then be used in the first workshop.

Field Visits: Throughout the project, several field visits were conducted both to the factory and the office premises in Fastems, to gain first-hand knowledge. During

each visit, gathered insights were documented to be transcribed and analysed later. Especially factory visits proved to be very useful in this project, by helping me better comprehend the way products and systems work in their environments.

Benchmarking: The market is quite mature for the companies that manufacture automation systems. Even though Fastems has been able to get ahead of competition by providing flexible and extendable solutions, competition still exists. Before designing the styleguide, a benchmarking study is done to analyse the biggest competitors, so that the styleguide can effectively help Fastems differentiate.

Co-design: The distance between the future users of a product or a service and designers has never been closer (Sanders & Stappers, 2008). Thanks to methods like co-design, designers and other stakeholders are encouraged to have stimulating dialogues and take part in a collective creation process (Vaajakallio et al., 2009). In this project, once the interviews and workshops are organized, a number of co-design sessions are conducted with the key users of the styleguide.

Online Survey: Survey is a simple data gathering tool that generally consists of a set of questions. In this thesis work, it is used during the evaluation phase, to get feedback from the Fastems employees worldwide. The main objective of this online survey was to decide which concepts and product features are valuable enough to be further developed.

Semantic Differentials: Semantic differential is a technique that is designed to measure individuals' responses to some certain contrasting adjectives placed at each opposite end of a scale (Heise, 1970). In this project, it is employed in the online survey, to analyse the participants' feelings about the design concepts. Thus, 12 bipolar and nominally contrasting scales were developed. All the bipolar scale endpoints were adjectives (Identifiable - Anonymous, Inviting - Repellent etc.) which are derived from the data gathered throughout the project.

1.4. Objective & Research Questions

The main objective of this thesis work is to investigate ways to develop visual product identity concepts with a participatory design approach.

In the very beginning of the project, the brief was defined by the UXUS programme and it was rather broad. The objective in that initial brief was to develop a user experience styleguide, which aims to help company by providing guidance on designing products and sharing good examples on what user experience could mean in practise. However, it was soon realized that the scope of this objective is too broad to be covered within the given time frame. Therefore, the objective is narrowed down to developing visual product identity concepts, which would be the initial step towards developing the user experience styleguide in the future. Consequently, the early phases of the empirical research of this study will deal with the high level issues of the user experience styleguide development. Following, the focus will narrow down to developing identity concepts for products. Finally, the study will be concluded by presenting two concepts.

Throughout the project, major attention is paid to:

- Utilizing a user experience design approach for the visual product identity development
- Employing a participatory design approach to involve the case company employees, so they feel responsible and motivated to take action throughout the development process

Research questions:

- How can company-wide experience goals be derived?
- How can the company-wide experience goals be communicated via new visual product identity?

2. BACKGROUND RESEARCH

The purpose of this chapter is to introduce the theoretical background of the styleguide development and discuss the relevant desk research. First section of this chapter focuses on the general research about the relevant studies, and includes a detailed review of literature. Following section presents the research done to gain broader understanding in the case company specific topics.

2.1. Literature Review

To be able to carry out a successful research, it is essential to get informed about what has been already said about the research topic at hand. As Isaac Newton once said, “If I can see further, it is because I am standing on the shoulders of giants”. This literature review examines the main issues surrounding two paradigms, user experience and style. User experience part focuses on defining what user experience is all about and why it is important for this study. The second part is about style. It explains what style stands for in different contexts and discusses it within the context of this project. Finally, the literature review is concluded by explaining the need for the empirical research, which will then be explained in detail in the following concept development chapter. Exploring these two main areas of literature will contribute significantly to this study.

2.1.1. User Experience

Experience can be found everywhere in our lives, but what does it really mean? The word ‘experience’ takes its roots from the Latin word ‘experiri’, which basically means ‘to try’. It has been used for centuries, and its usage has been increasing, specifically over the last decades. The concept of experience can be explained in many different ways. In this study, I will approach experience as Hassenzahl does, who states in his article that “an experience is a story, emerging from the dialogue of a person with her or his world through action” (Hassenzahl et al., 2010, p. 8).

On the other hand, user experience is a rather new term. It was first used - in the sense it is currently used - by Donald Norman in the early 90’s (Norman et al., 1995). To put it shortly, it is fundamentally a sub-category of experience. Differentiator factor is that it mainly deals with the nature of relations with users and interactive products (Hassenzahl, 2013).

At the present time, it is likely to encounter multiple perspectives and definitions of user experience, due to its context dependant nature. Each field that deals with user experience has its own approach to it (Väänänen-Vainio-Mattila et al., 2008). For instance, the field of human-computer interaction (HCI) focuses mainly on user interfaces, user’s needs and usability issues. The field of economics makes use of user experience to better communicate brand values for gaining competitive advantage. Psychology based research concentrates on “the entire set of affects that is elicited by the interaction between a user and a product” (Hekkert, 2006). Design research, on the other hand, synthesizes some of the relevant approaches from the aforementioned fields and reflects them in the form of design methods, to develop specific features and elements that provide quality experiences. Although the focus areas vary, it is reasonable to say that they all deal with users, and interactions happening around them. Moreover, as the study indicates, no matter how diverse the fields are, they all arrive at a same conclusion that user experience means more than just usability and a product’s usefulness (Väänänen-Vainio-Mattila et al., 2008).

Before progressing any further, it is essential to make it clear what is meant by user experience in this study. The most suitable definition considering the context of this project is made by the International Organization of Standardization (ISO). According to ISO, user experience is “a person’s perceptions and responses that result from the use or anticipated use of a product, system or service.” It also adds the statement that the user experience encompasses users’ all emotions, choices, reactions and establishments that happened before, during and after the actual usage (ISO 9241-210:2010). One vital point to include is that it is predominantly about providing value and pleasure, rather than enhancing usability qualities (Roto et al., 2009). Similarly, Kim et al. (2011) also states that providing satisfaction and enjoyment for the users during the interaction moments with products, services or systems, should be a priority when it comes to designing for user experience.

User experience deals with an interaction that has a beginning and an end. During this interaction period, there is a wide variety of factors affecting the experience. According to Hassenzahl and Tractinsky (2006), these factors can be classified into three main categories:

Context: As mentioned before, user experience is highly context dependant. Even though the user and the system or service stays the same, overall experience can be transformed when the context changes.

User: Each user is different in nature, in terms of his/her current internal state, mood, motivation behind interacting with the product etc., and these states can differ from time to time. Accordingly, along with the changes in user’s internal state, user experience shifts as well.

System: The way users perceive a system within which the interaction occurs deeply affects user experience. For instance, functionality, responsiveness, coolness and the other aesthetic properties of a system influences the outcome users have as a result of the interaction.

Products are invaluable variables in the user experience equation. When designing a product, designers embed specific features to it, which are then combined to fabricate certain characteristics. According to Hassenzahl (2005), people's perception of this kind of interactive products can be divided into two dimensions, which are pragmatic and hedonic. Pragmatic quality mainly focuses on functional aspects of a product, such as its utility and usability when undergoing a potential task. It facilitates users' process of accomplishing 'do-goals', such as 'doing laundry', 'calling parents' 'walking the dog' etc. On the other hand, hedonic quality is about users' self and their motivations behind using a particular product. It deals with supporting the accomplishment of users' 'be-goals', such as 'feeling related', 'being self sufficient', 'having an impact on society', etc. (Hassenzahl, 2008). In order to formulate a positive user experience, both pragmatic and hedonic qualities have to be satisfied (Hassenzahl, 2010).

In relation to the pragmatic and hedonic dimensions, Hassenzahl (2010) illustrates a conceptual model for experiences. In this model, three levels to consider are presented, which are the What, How and Why levels.

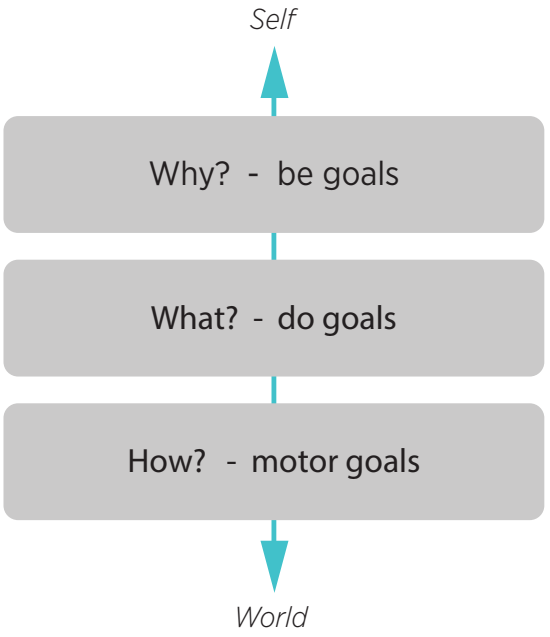


Figure 2.1
A conceptual Model for Experiences. Based on Hassenzahl, M. (2010). Reprinted with permission.

‘The What’ level refers to the actions that people can undertake by interacting with a product, such as ‘washing the dishes’, ‘singing a song’, ‘sending an email’. As it can be seen, this level deals with issues similar to ‘do-goals’. It is closely related to functionality of a certain product and often tied to technology.

‘The How’ level concentrates on the ways these required actions are undertaken. This level usually is the area that interaction designers position most of their work on. For example, to send an email (What level), you need to turn on the computer, log in to your personal email account, type the text by using the keyboard, press send etc. (How level). Naturally, this action of sending an email could have been performed in a variety of ways (e.g. by using a phone or a tablet). Consequently, the final experience would be different.

However, these two levels fail to address an important aspect of this interaction, which is the actual motivation the user has to send an email. Email is one of the most popular digital communication platforms. It can be seen just as an instrument that delivers a message. On the other hand, it can also be seen as a love letter to a distant lover, to satisfy the need for relatedness (notice the similarity to be-goals). Or it can be an act of support, coming from a mother to her son just before an important job interview. Why level deals with these kinds of real needs and motivation behind the interactions (Hassenzahl, 2013). When designing for user experience, the process should start from the Why level, to initially illuminate the needs and motivation. Only then the functionality of the product (What level) and viable ways of establishing this functionality (How level) can be decided.

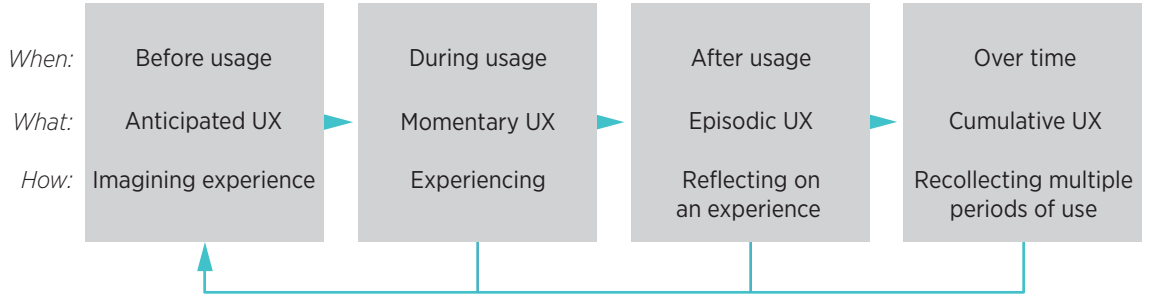
At this point it is worth mentioning that similar approaches that underline the importance of designing for the ‘Why level’ can be found in the literature. For instance, Karvonen et al. (2012) argues that ‘user experience goals’ are invaluable means that can facilitate process of defining what kind of positive experiences products should evoke. Evidently, these goals fundamentally deal with the Why level, and focus on defining experiential qualities of products. In this study, the process of designing the styleguide will start from the Why level. Initially, experience goals will be discovered, and these goals will be transferred to appropriate design implications.

2.1.1.1. Time Spans of User Experience

As mentioned earlier, user experience mainly focuses on the actual interaction moments that have a beginning and an end. However, there is more for user experience to cover than just these actual usage moments. As Roto et al. (2010) suggests, users can also have indirect experiences before or after the actual interaction moment. For instance, even before using a product, people may have already built up related expectations, that are formulated by their prior experiences from similar product and technologies, or by the opinions gathered from their acquaintances and advertisements. Similarly, reflections made following the usage are also considered as a part of user experience.

As it can be seen in the image, user experience can be divided into 4 time spans. Anticipated UX refers to the experiences that occurred before the actual usage moment. Momentary UX, considers the experiences during a specific interaction moment. Episodic UX, on the other hand, focuses on a period of time where a number of usage moments took place. Lastly, cumulative UX can be categorized as the combination of these three time spans, and is formed over a longer period of time (Roto et al., 2010).

Figure 2.2
Time Spans of UX. Based on Roto et al. (2010). Reprinted with permission.



It can be concluded that, when designing for user experience, each time span has to be carefully considered to provide an all round successful experience.

2.1.1.2. User Experience in Commercial Settings

As described earlier in the introduction chapter, economy has been evolving over the years. A shift from an industrially driven economy towards a people-driven economy, where consumers are on the focus of all actions, has been observed (Gobé, 2009). In the present time, standing out in the crowd of intense competition is more challenging than it has ever been. This is due to the fact that the world has become oversaturated with similar goods and services (Pine & Gilmore, 1998). Companies soon realized the transition and started paying more attention to designing for experiences to be able differentiate in the highly competitive market (Väänänen-Vainio-Mattila et al., 2008). Along with this transition, the scope of design in the industry has extended from mere usability and functionality to providing meaningful experiences (Kim et al., 2011). Accordingly, Fastems is aiming to position user experience mindset into the core of all its actions by utilizing a user experience styleguide.

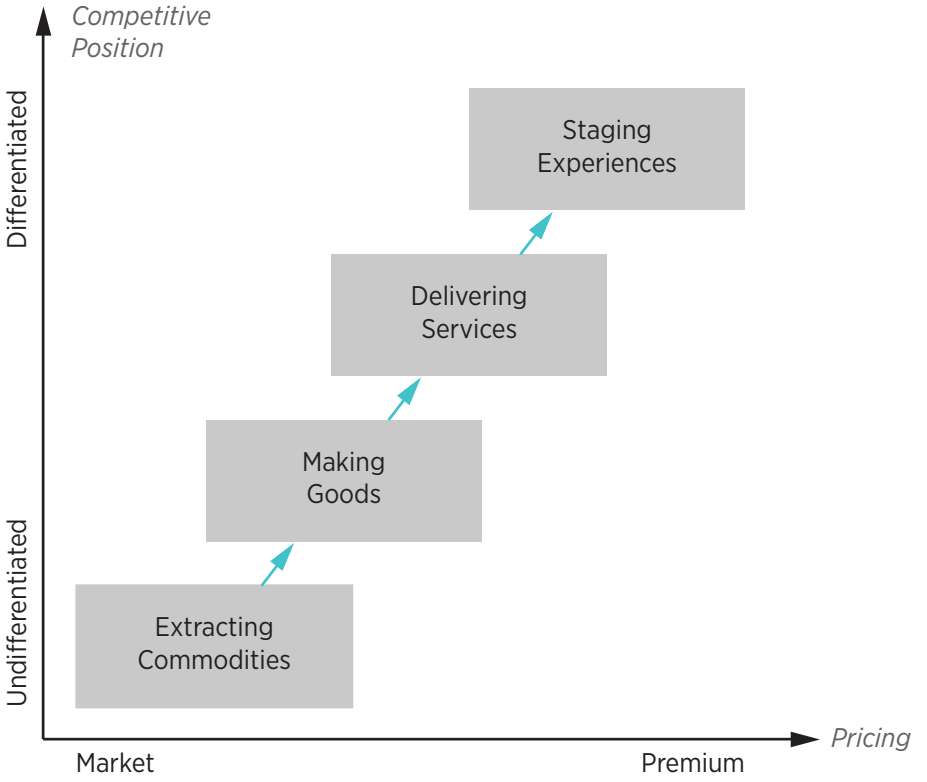


Figure 2.3
A Shift Towards Experience Economy. Based on Pine & Gilmore, (1998). Reprinted with permission.

As Hekkert et al. (2003) claims, big corporations (e.g. Philips, Nike) has already started adopting experience driven design as a new product development strategy. After all, to enhance the business success, it is essential to place users' needs and motivations in the centre of focus (Roto, 2007).

> *"Good user experience is good business."* (Garrett, 2010, p.12)

2.1.2. Style

To be able to design a styleguide, it is essential to understand what style really stands for first. According to Stacey (2006, p. 2), "A style is a manner of doing something, chosen from a wider range of ways to achieve the same result." When this specific way of doing is repeated over time to produce similar actions, repetitive arrangements can be observed. Eventually, these systematic arrangements formulate a style.

Different types of styles can be noticed throughout the history. When examining fine and performing arts, it can be seen that objects or performances have been established by adopting certain unique approaches and methods. For instance, if an artist is employing certain distinct features and elements in his works repeatedly, he consequently creates his own individual style (e.g. van Gogh style). In a similar manner, a style can be established by a group of people (Prairie style), across some geographical areas (southwest regional style), or through a specific period of time (renaissance style) (Chan, 2000).

In order to create new styles or maintain existing ones, it essential to be able identify the elements that generate the style. This might be challenging due to the fact that style is a rather abstract concept. However, Chan (2000) proposes that

it is possible to consider styles as entities. It is further argued in his article that the concept of identifying styles is similar to identifying colours. Colours can be found all around us in the real world. No matter how widespread and just round the corner they are, making exact identifications by words is impossible, because of the tremendous amount of alternatives. However, thanks to the developments in information science, each colour can be mathematically defined by its exact hue, saturation and brightness values; displayed and printed using several common colour models, such as HSB, RGB, CMYK. Similarly, it is possible to identify styles by recognizing the repetitive forms, features, and syntax appearing in objects. Once these elements are identified, styles can be considered as entities, and therefore can be measured (Chan, 2000).

Identifying certain elements as stylistic features is critical to recognize a style. Moreover, it is equally important to know what kind of characteristics these elements should possess in order to be considered as stylistic features. Chen and Shao (2003) discuss this issue in their article and propose three distinguishing characteristics:

1. The composition must possess distinctive structure that can be distinguished from others
2. It must be created via an innovative process by designer(s) to achieve certain functions
3. It must be one of the salient formal elements repeatedly applied by designer(s)

In other words, to be able to develop a new style, one needs to create a product - by implementing a novel process - that consists of a distinctive structure and possesses repetitive elements (Chen & Shao, 2003). Since the aim of the thesis work is to design a product identity styleguide, a new style for products will be developed as a case study. Therefore, these criteria above will establish the building blocks of the development process.

2.1.2.1. Style in Commercial Settings

The concept of style has long been discussed for recognizing the works of artists and groups. In the same way, it is beneficial that the scope of discourse on style is extended to cover the products and objects designed for commercial markets.

In commercial settings, styles are defined as combinations of constant and repetitive elements that communicate what brands stand for with their audience. There has been a growing interest in the literature focusing on establishing competitive advantage for brands by paying attention to the style development. One important insight from the related literature is that employing tangible product attributes (distinct shapes, brand specific colours, materials etc.) can help customers recognize the products of a particular brand. (Person & Snelders, 2010)

As explained previously, each passing year it is becoming more challenging for companies to satisfy customers' expectations. Providing offerings only for customers' physical needs (similar to do-goals) has started to be insufficient. Thus, serving for psychological desires (be-goals) is of utmost importance as well. Most companies have distinct values, and aim to communicate these values and visions with their customers via their offerings, in order to create loyalty. After all, customers only become loyal to the brands that they can relate to. However, these concepts of loyalty and relatedness are rather abstract, therefore challenging to grasp. When it comes to communicating these abstract concepts, visual impression plays a critical role. Therefore, it is crucial for brands to establish a unique style to maintain and sustain their image, and communicate their values consistently (Chen & Shao, 2003). These findings stress the importance of designing visual product identity concepts for the case company. However, it is essential to stress here that product identity may cover more areas than just visual characteristics of products. However, this study will only focus on the visual aspects.

For what specific purposes can styles be used in commercial settings, other than representing a brand and communicating its values? To answer this question, Person et al. (2007) identifies three intermediary goals for styling in commercial settings:

1. Drawing attention

A new style should be able to draw customers' attention, so that they can derive information from products and process it accordingly. Otherwise, there would not be any interaction and the products would go unnoticed.

2. Establishing recognition

Styling helps customers to notice the relations between the products. Therefore, it is possible to distinguish a certain product as a member of a specific product category or as being made by a specific designer. For instance, when seeing a product that is made of glass and anodized aluminium, seamlessly brought together with a continuous form, we can recognize that it is an Apple product, designed by the famous designer Jonathan Ive.

3. Providing symbolic meanings for customers

Certain elements and design features of products can suggest more abstract values that go beyond mere utilitarian functions. For instance, just as in the previous example, by recognizing a cell phone as an Apple product, we might assign symbolic meanings to it, and assume that using it will be an intuitive and enjoyable experience.

Certainly, it is essential to note that these intermediary goals are closely linked to each other. Establishing recognition would not be possible if the product did not attract customer's attention and get noticed in the first place. Similarly, for making customers derive symbolic meanings from products, establishing recognition is an essential requirement as well (Person et al., 2007).

After discussing the importance of styling in commercial settings and stating its purposes, it is also valuable to mention the dimensions that designers should consider when launching a new product to the market that is in line with the current style of a brand. For that purpose, design theorist Monö (1997) proposes three dimensions:

1. The present product portfolio

Earlier research suggests that it is easier for the customers to recognize a new product if it is designed in a similar manner to the existing products in the brand's portfolio (Karjalainen, 2004). For instance, cars designed by the Volvo brand are good examples for this dimension, even an untrained eye can observe the similarity across its product portfolio.

2. The succession of product generations

Styling is valuable when it is consistently implemented over time. Therefore, it is important to establish similarity not only on current product portfolio, but also over product generations. As it can be noticed in the styling strategy of the HiFi systems manufacturer Bang & Olufsen, sustaining similarity over successive product generations can help customers maintain recognition for the brand.

3. The products of competitors

In most cases, brands make considerable efforts to develop and maintain styles that are different from their competitors'. Therefore, this aspect of differentiation gives them a competitive advantage in the market. One related example to this dimension is the British company, Dyson, which manufactures innovative vacuum cleaners. Uniqueness is an essential element of Dyson's styling strategy and it is the main reason behind the company' success over the years (Person et al., 2007).

2.1.3. Need for Empirical Research

In this literature review, critical issues about the user experience and style paradigms are discussed in detail. Findings provided extensive knowledge and understanding on these two main fields. To my knowledge, however, it is rather challenging to find studies focusing on the intersection of these fields. That is to say, the area that deals with employing user experience approach in style development process is still unexplored. This result stresses the need to continue this study by conducting empirical research. Therefore, in the next concept development chapter, visual product identity concepts will be developed by implementing empirical research methods.

2.2. Styleguide Review

During the early phases of the project, existing style guidelines from a variety of brands (47) are reviewed. Nearly all of the established brands have their unique identities. In order to ensure uniformity and same level of quality in each and every work, they make use of some certain guidelines in their daily tasks.

After the review it was found out that, just as the companies widely differ in what they do, the guidelines that they employ are rather different as well. While some are for editorial purposes specifically designed for publishers, some others focus on providing guidance about the usage of graphical elements; such as colours, fonts, logos etc. No matter what purpose these guidelines are designed for, utilizing them has a large amount of benefits. To name a few, they;

- Ensure coherency
- Save time and money
- Communicate core values
- Guarantee professionalism

To my knowledge, there is no common name out there for these guidelines. Some of the names that I found were; Branding Guidelines, Brand Standards, Identity Style Guides, Visual Identity Guides, Brand Manuals etc. After assessing these different possibilities, I decided to utilize the term “Product Styleguide” in my thesis work.

2.3. Fastems Materials

A number of materials provided by Fastems were reviewed throughout the project.

Fastems Culture Book
During the first months of this thesis work, Fastems has been working on developing its company culture in parallel with the styleguide development. The core elements of the company culture are crystallized in the “Culture Book”. The main purpose of this book is to illustrate Fastems manners and communicate them

internally with all the employees. Therefore, each and every employee can be taken on board during the rather challenging process of identity revision. Going through this material proved to be useful in understanding what new Fastems will be like in the near future.

Previous Student Work

On the education year 2013-2014, a group of students from the Aalto University have worked in collaboration with Fastems for 8 weeks. The project was a part of the course "Experience-driven Design" run by Virpi Roto. The brief given by the company to the students was rather broad, they were asked to design elements for making Fastems products more identifiable. During the project, they came up with customer experience targets, which were: Wow, Proudness and Trust. These targets were utilized as building blocks in this project, and were adjusted in relation to the secondary and empirical research findings.

The other important element that I derived from the student work was the design drivers, which were: Scalability, Simplicity, Identifiability, Homogeneity, Cost-effectiveness, Continuity, Safety, Ergonomicity [sic]. After careful consideration, only the ones that best serve this study were selected. Consequently; Simplicity, Homogeneity, Continuity and Safety were filtered out. The final design drivers will be explained in detail in the concept development chapter.

"Brand Identity and Image in B2B Factory Automation Context" Master's Thesis Work by Mikko Tuomaala

Mikko Tuomaala, an MA student from the Lappeenranta University of Technology, Industrial Management Department, has done his master's thesis work in collaboration with Fastems as well. His thesis work is focused on analyzing Fastems brand identity and comparing it with the customers' perception (Tuomaala, 2014). By reviewing this work, a better understanding on the Fastems identity could be acquired.

Existing Manuals & Standards & Factory Materials

Just as reviewing the style guidelines that are used by the other brands, it is important to get familiarized with the types of guidelines that are utilized by

the Fastems employees as well. As a result of this review it was found out that the standards are used fairly often in daily tasks. However, other guidelines and manuals are not treated the same. Most of them are used only in the beginning of an employee's career, and then they are rarely ever consulted again. In the past, there were some efforts made by managers to improve the usefulness of the guidelines. However, these efforts have not yet had an effect.

2.4. Benchmarking

The market is notably saturated for the companies that manufacture automation systems. However, Fastems has been able to stand out in the crowd thanks to its ability of being flexible and extendable. It can work together with all the machine tool manufactures, integrating their products to provide world leading automation solutions. However, competition still exists. As described before, the styleguide that will be designed as a result of this thesis work aims to help Fastems differentiate from its competitors. To better understand what "different" stands for in this context, a brief benchmarking study on the biggest competitors is conducted.

3. CONCEPT DEVELOPMENT

In this project, I set out to develop visual product identity concepts by employing a participatory design approach. As explained in the previous chapters, the new identity concepts will then be used as building blocks to develop a user experience styleguide in the future. However, the complete development process of the user experience styleguide will not be a part of this study.

This project has its starting point in already existing multi-level systems, and it aims to present visual identity concepts for a new version of these systems. In this chapter I will illustrate two final concepts and present the details of the development process. With the term concept, I mean a proposal for future direction of product identity development.

To kick-off the project, I travelled to Tampere for a two-day long interview marathon. During my visit I interviewed 6 employees from different backgrounds, to be able to better understand the way the case company works. All the interviews were voice recorded. After the interviews, recordings were transcribed and insightful notes were created. Then these notes were used to create an affinity diagram, which were later used in the first workshop.

First workshop was about gathering insights on the high level details about the styleguide, such as its content, main users and format. Once these questions were

answered, second workshop was conducted, which was about finding Fastems' company-wide experience goals.

As soon as the company-wide experience goals were ready and set, I finalized the design drivers, which then helped me set the course of the concept design direction. Thereafter, I did field visits to get better accustomed with the factory environment and the manufacturing methods. One of those visits involved digging deep into the multi-level systems, thanks to the pilot case. This case is actually a running system, designed by Fastems to demonstrate the capabilities of its products. It was a very fruitful experience, since it provided me an opportunity to see how the whole system works thoroughly.

As a next step, since I have all the data needed to start the actual designing process, I started sketching, and came up with several design concepts. Last but not least, I conducted a number of one-to-one co-design sessions to be able to develop the selected concepts even further. In the following sections, each of these steps will be explained comprehensively.

3.1. In-depth Interviews

In-depth interviewing is one of the main data collection techniques used in qualitative research that involves conducting intensive individual interviews with a small number of respondents to explore their feelings and perspectives on a particular idea, program, or situation (Boyce & Neale, 2006). Fundamentally, in–depth interviews require asking pre-defined questions, while methodically recording and documenting the answers, in order to deeply analyse them later.

Conversing with people by asking questions about their lives is an effective way of producing empirical data. As Holstein and Gubrium (1997) suggested, there are plenty of variations of these types of conversations. They can be highly structured and quantitative data oriented or rather semi-formally guided interviews. In any case, they share the common aspect of being interactional. Moreover, a good in-depth interview appears natural. However, it is critical as a researcher, to recognize the obvious differences between normal conversations and in-depth interviews.

(Legards et al., 2003)

One of the main reasons why I decided to employ in-depth interviewing in this project is that it enables me to collect more detailed information, compared to the other data collection methods (Boyce & Neale, 2006). It also provides a more relaxed atmosphere, thanks to its flexible structure. This sort of interviewing is interactive in its nature. Therefore, one answer to a certain question may lead to another question, and so on. As a result, valuable data can be gathered by the result of this loosely structured interaction between the interviewer and the interviewee. (Legards et al., 2003).

On January 2014, interviews with the case company employees were conducted to better understand the company and its organization. Six interviewees were chosen from different positions, to gain a broader perspective on the subject matter. Interviewees were as follows:

Interviewee 1 (Marketing Specialist)
Interviewee 2 (Product Manager)
Interviewee 3 (Design Engineer)
Interviewee 4 (Design Engineer / R&D Specialist)
Interviewee 5 (R&D Specialist)
Interviewee 6 (Service Manager)

11 questions in total were prepared for the interviews. Although they were pretty similar, the questions were slightly adjusted according to the interviewee's backgrounds.

Interview questions for engineers:

1. Could you please explain us your role/position in the company?
2. How long have you been working here?
3. Please tell us about your typical day at work.

4. Please walk us through your tasks in a project from the beginning till the end. Also a brief explanation of how you interact with other departments along the way would be appreciated.
5. How and where did you learn to design these systems?
6. Which tools do you use the most for designing the systems?
7. Are you using some kind of a manual or a guide book for designing the systems?
8. In what kind of situations do you use this guide book?
9. Has the book been useful for you?
10. <We explain our user experience styleguide development task and the purpose of it> What would be the best way to take this book into practice, in your opinion? <more discussion on the possible ways>

Figure 3.1
In-depth interview session in the office environment

Before the workshop, a visual that portrays the development process of a customer project was prepared. This visual was designed to be handed in to the interviewee, so that s/he would fill it in while answering related questions, such as: “In which part of the process are you taking part? And who are you mostly working together with?”

Figure 3.2

Development Process Visual for Interviews

Furthermore, in advance to the interviews, I practised ways of starting and ending the sessions, in order to create an equal environment for the different interviewees. As Boyce & Neale (2006) argued, it is very important to develop an interview protocol in order to be consistent.

Each interview session lasted about 2 hours. All of them were voice recorded and transcribed afterwards. The questions were posed in order from time to time, but

to stick to the nature of in-depth interviews, the discussions were relatively loose. Once an interesting insight was mentioned, more related questions were asked in order to gain more knowledge on the matter at hand.

In fact, in the interest of making the interviews more rewarding, I initially planned to conduct contextual inquiry sessions rather than in-depth interviews. However, mainly due to lack of time reserved for the individual meetings, I decided to settle with in-depth interviews conducted in meeting rooms. Nevertheless, interviewees were asked to bring all the related materials that they utilize in their work. These materials opened up discussions that would most likely be overlooked otherwise.

3.1.1. Interview Analysis

After the interviews, the audio recordings were transcribed and the findings were analysed. First part of the analysis included creating affinity notes which were then

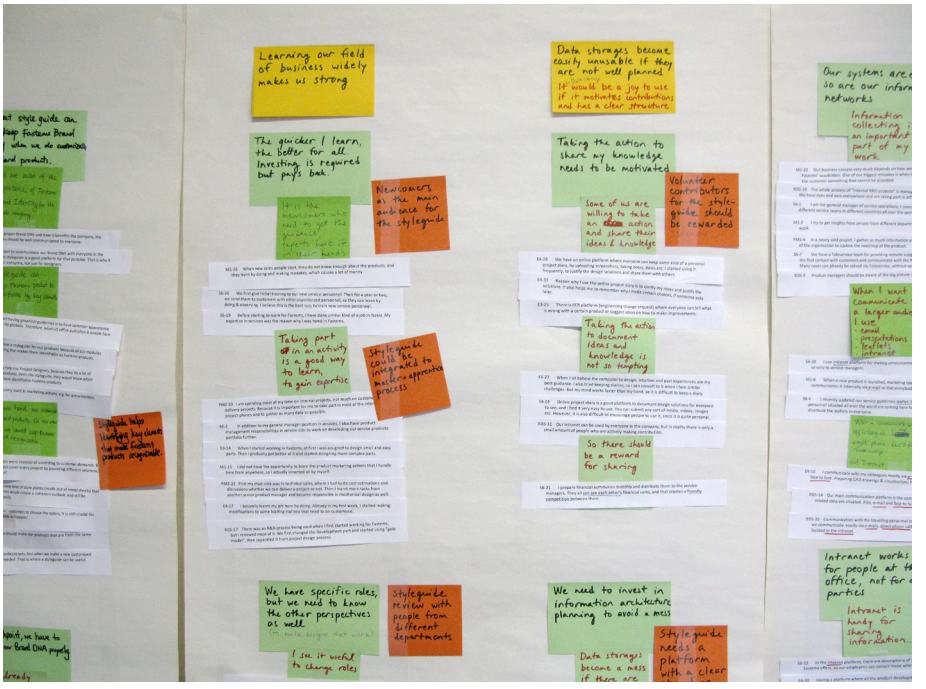


Figure 3.3

Affinity Diagram

used to build the affinity diagram.

Affinity diagram is an effective method that is used to organize the notes gathered from other data collection sessions into a wall-sized hierarchical diagram. It allows researchers to group the relevant notes under labels and shows key issues and important insights in a hierarchically structured manner. Once the diagram is ready, participants can literally 'walk' along the wall to go through the notes and start creating new ideas (Holtzblatt et al., 2004).

Going through the voice recordings and transcribing them took me about four days. Once all the data was written down digitally on the computer, I spent five more days turning this raw data into insightful notes, which are called 'affinity notes' (It is important to mention here that these notes were formulated as first person sentences, just as if they were quotes from the interview participants). There were approximately 300 notes in total. Creating these notes can be a rather challenging task, since it requires paying great attention along the process not to miss any valuable insights. However, it is indeed worth the effort, thanks to the method's ability of effectively organizing the collected data. Once the affinity notes were ready, it was time to build the affinity diagram. For the building part, I had help from two other researchers, who are also members of the UXUS programme. Without their help in building the affinity diagram, this could have been a very time-consuming task.

Firstly, the notes were shuffled and laid out on a table. Afterwards, they were grouped together according to relevance and pasted on the wall in an organized manner, to create columns. The purpose of this kind of a hierarchical organization is to allow people to walk the wall and read through the findings topic by topic.

The brief summary of the Affinity Diagram results are as follows:

- Fastems needs to focus on brand competition
- Learning our field of business widely makes us strong
- Data storage platforms become easily unusable if they are not well planned (Data storage platforms would be a joy to use if it motivates contributions and has

a clear structure)

- It would be great to have an online platform that stores experts' knowledge and provides that information to anyone, anytime, anywhere
- Standardization helps our company to survive changes and grow stronger
- Guidelines create common understanding within the company
- New ideas are very valuable for our company, they help us get better at what we do
- Having common guidance in all touch points is very important

The results of the affinity diagram and the actual walking-the-wall part will be explained in detail in the next chapter.

3.2. 1st Workshop

On March 2014, another visit to the case company was made for conducting a co-creational workshop. In this workshop, we used the affinity diagram which was created according to the data gathered through the interview findings. The main objective of this workshop was to generate ideas on the high level details about the user experience styleguide.

Participants were:

1 Lean Manager
2 R&D Specialists
1 Mechanical Design Specialist
1 Product Manager
1 Marketing Specialist
1 Culture Team Member

This workshop was organized by me and two other researchers who are also taking part in the UXUS project. Since three groups were formed to investigate the main topics, each of us joined one team as facilitators.

3.2.1. Workshop Overview

In the morning session, the workshop was initiated by explaining the topic and the main goals for the day. Afterwards, the participants walked the wall and discussed the high level details of the styleguide. Then, they were asked to write down ideas on post-its and paste them on the wall, under the categories where they see fit. Once the ideation was finished, the post-its were read out loud to share the insights with the other participants. At the end of this session, main questions that needed to be answered during the afternoon session were presented. These questions were:

- Who are the **main users** of the styleguide?
- What is the most effective **format** for the styleguide for providing the best user experience?
- What kind of **content** should the styleguide include?

Figure 3.4
Participants Walking the Affinity Diagram

In the afternoon session, participants were divided into three groups and they brainstormed on three main topics which are derived from the questions above; format, main users and content of the styleguide. Findings were then discussed within the groups and later presented to everyone.

Figure 3.5
Participants discussing within their groups

3.2.1.1. Main Users

As a result of the workshop, it was decided that design engineers, product managers, R&D and marketing specialists will be the primary users of the styleguide. However, it is important to keep in mind that these are the primary users, who will make use of it the most, and be the pioneers when it comes to encouraging other employees to start utilizing the styleguide in their work one way or another. In the long run, every employee is expected to use the styleguide.

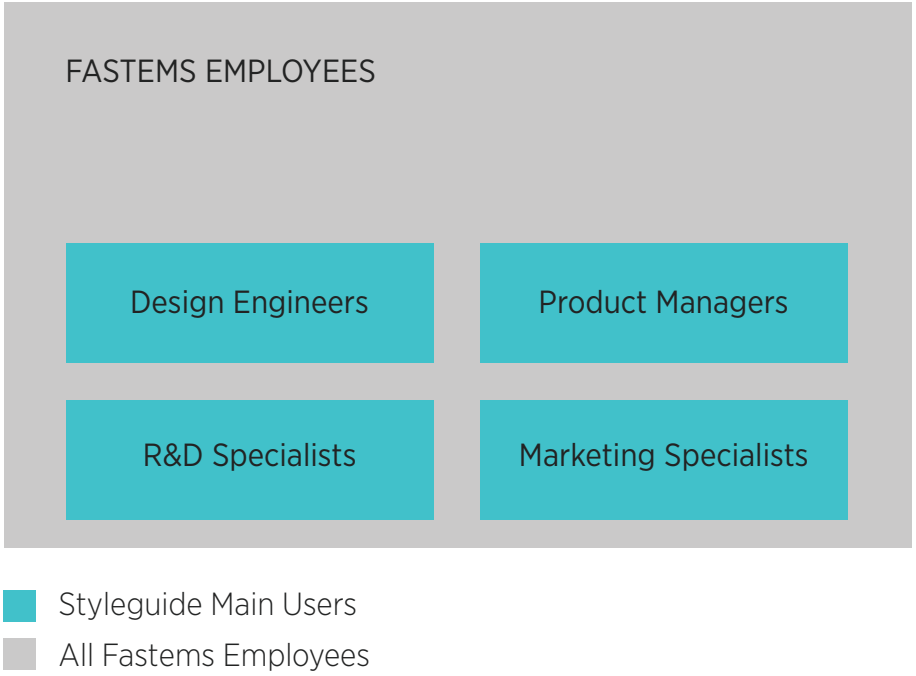


Figure 3.6
Illustration of the Main Users of the Styleguide

3.2.1.2. Format

Selecting the most effective format for the styleguide was a challenging task at first. Initial alternatives included posters, booklets, interactive mobile apps or online documents that can be printed when needed. However, after the workshop it was discovered that it would be the best if the styleguide is easily implementable to the company's intranet platform, since every employee uses it regularly. This high accessibility feature makes intranet an ideal platform for the styleguide.

Consequently, creating a separate segment for the styleguide within the intranet was decided. This new segment would be called Brand DNA platform. It is aimed to be interactive, where every employee is encouraged to contribute to be able to turn it into a living organism which evolves over time. The content of this Brand DNA platform is explained in the next section.

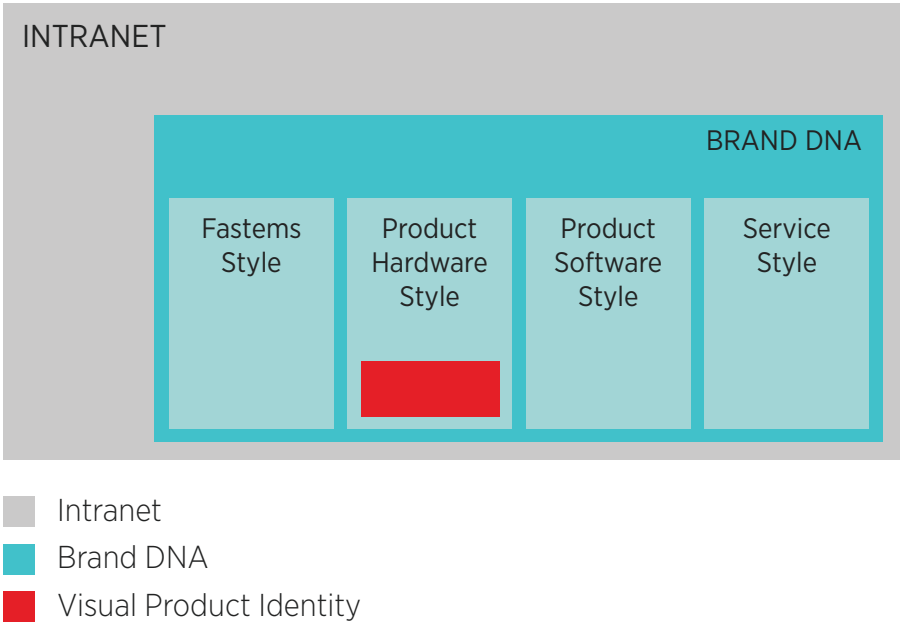
It is important to stress here that the findings about the styleguide format (as well as about the main users) are not deeply utilized in the thesis work, since they are out of scope. Therefore only a short summary of these findings is presented here.

3.2.1.3. Content

The content of the Brand DNA platform was decided at the end of the workshop. There are four main categories in this platform, which are:

1. Fastems Style
2. Product Hardware Style
3. Product Software Style
4. Service Style

Figure 3.7
Illustration of the BRAND DNA structure



First one includes high level information about the case company brand and communicates the company-wide experience goals (which will be explained in detail later). Second one is designed for the employees who are working on

designing the hardware, in other words the physical systems. Information about designing these systems can be found there. In fact, this is the category that the visual product identity concepts will be implemented. Third one, on the other hand, offers information about designing the software. Lastly, the fourth category introduces information that is valuable for the service people.

3.2.2. Workshop Reflections

As a result of this workshop, it was discovered that the emphasis on this project will fall on the 'content' category, especially on the product hardware style section, since the scope is too wide to focus on all the categories at once. Accordingly, visual product identity concepts will be designed. This realization has utmost importance for the course of the thesis work, since it shifted the focus from developing a user experience styleguide to designing visual product identity concepts. This is also the main reason why the findings about the 'platform' and the 'main users' of the styleguide are summarized briefly, and will not be studied deeply in this study.

During the final discussion part of the workshop, goals for the project were updated and tasks for the second workshop were divided.

Next steps for the case company:

1. Information about the styleguide activities has to be communicated internally via posters in-house. These posters should include background information about the project and communicate company's motivation in designing the styleguide.
2. Information architecture that deals with the general structure of the Brand DNA platform should be designed. Because it was found out that it is crucial to have the platform up and running first, to be able to implement the styleguide and start utilizing it.
3. DNA Cards that represent the company's Brand DNA should be designed for employees to carry, so that everyone should get on board during this brand revision process.

Next steps for the researcher:

1. Company-wide experience goals should be defined.

2. Fastems' intranet should be studied, in order to see if it is a suitable platform for the DNA Board to be implemented.

3. Multi-level system pilot case should be conducted in order to get better accustomed with the systems.

3.3. 2nd Workshop

The objective of this workshop was to determine the company-wide experience goals that would construct the fundamental building blocks of the visual product identity concepts. Company-wide experience goals are experiences that the case company aims to communicate with all its stakeholders, via all its actions and offerings. These goals are basically the same as experience goals that were previously discussed in the literature review chapter, that deals with the 'how level' of experiences. The only difference is that the company-wide experience goals are more high level and they encompass experiences that are related to the whole company.

To be able to come up with the company-wide experience goals, I wanted to gain deeper understanding on the case company's brand first. Therefore, I analysed branding materials that include related information. After the analysis, I conducted a brainstorming session with two other researchers in order to summarize the findings. During this session, notable attention was paid to the time spans of user experience, so that the combination of the goals could provide a thorough experience. Eventually, we came up with 4 potential company-wide experience goals.

These potential company-wide experience goals were:

- Flexibility
- Impressiveness
- Trust
- Proudness

Main goals of this workshop were:

- To check whether the chosen experience goals fit Fastems brand
- To identify the parts of the current system's design that are well in line / are not in line with the company-wide experience goals
- To ideate on new design features that communicate the company-wide experience goals

The workshop was held at the Fastems premises on April 2014. 10 participants were chosen from the employees with diverse backgrounds, including:

2 Product Managers
1 Designer
2 R&D Specialists
2 Marketing Specialists
1 Branding Specialist
1 Researcher (robotics)
1 Software Designer

Figure 3.8
Workshop Participants discussing their ideas

In the workshop, participants were divided into 4 groups according to their backgrounds – the purpose was to have the groups as diverse as possible to be able to have more fruitful discussions - and each group was given one company-wide experience goal to work on.

The workshop was divided into two parts. In the first part, participants were first asked to identify the products from the current portfolio that are in line with the given experience goal. By doing so, we could both define the product features that communicate the experiences, and also test the validity of the chosen experience goals.

In the second part, groups presented their findings about the product features and made final decisions on which company-wide experience goals to focus on. After finalizing the experience goals, groups kept their formation and made ideation sessions in order to come up with more ideas on product features that are in line with the selected experience goals.

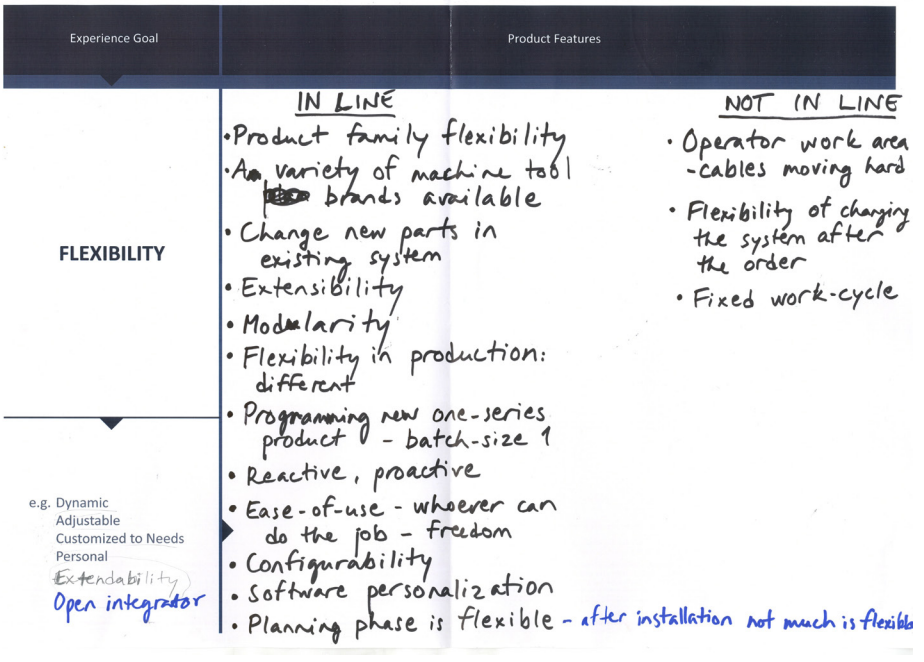


Figure 3.9
Template Designed to Facilitate the Group Work

3.3.1. Company-wide Experience Goals

In order to facilitate the group work during the workshop, a template for each candidate experience was designed. In this visual, participants could see the experience goal and the attributes that reflect what this experience means in their own work context. Besides, they were able document their ideation session on the blank side of the template by writing down their insights or drawing rough sketches.

In the following sections, each experience goal and related findings from the workshop will be explained in detail.

3.3.1.1. Flexibility

Flexibility is a vital quality that Fastems offers to its customers. It stands for company's ability of tailoring the systems according to customers' needs and expectations. Each system that Fastems designs is highly adjustable and can be

Figure 3.10

Flexibilty Mood Board

personalized for operators. In this case, flexibility is an experience that is built over a period of time where a number of usage moments took place, therefore it focuses on the episodic time span of user experience. To be able to better communicate flexibility, a number of attributes that communicate this experience in the work context were presented to the participants:

- Dynamic
- Adjustable
- Customized to Needs
- Personal

Some important flexibility-related insights that came up during the workshop were:

- Modularity
  Modularity of the systems should be more visible, to emphasize the fact that they are made of separate modules and are extendable (modules are like puzzle pieces)
- Colour coding can;
  be used to show which parts are integrated
  show the points of extension
  be used to differentiate standard & static parts
- Expandability (extendability)
  Areas that can be extended in the future can be painted differently
- An intuitive user interface makes being flexible easier for the operators

Product features that are in line with the flexibility experience goal (why Fastems communicates flexibility):
- Fastems product families are very extendable
- A wide variety of machine tool brands are available and can be integrated to Fastems systems
- Fastems' production abilities are very flexible
- Ease-of-use, anybody can do the job
- Systems are easy to configure
- Project planning phase is flexible

Product Features that are NOT in line with the flexibility experience goal (why Fastems does NOT communicate flexibility):
- Operator working area has no room for flexibility, since moving the cables is challenging
- After the order is taken and the design phase is completed, level of flexibility decreases

3.3.1.2. Impressiveness

Second selected experience was Impressiveness. Fastems products, specifically multi-level systems, are monumental products that occupy a large amount of space. It is one of the first things that is noticed when entering a customer's factory (momentary UX). Therefore, it is vital to communicate its importance and value to the factory organization.

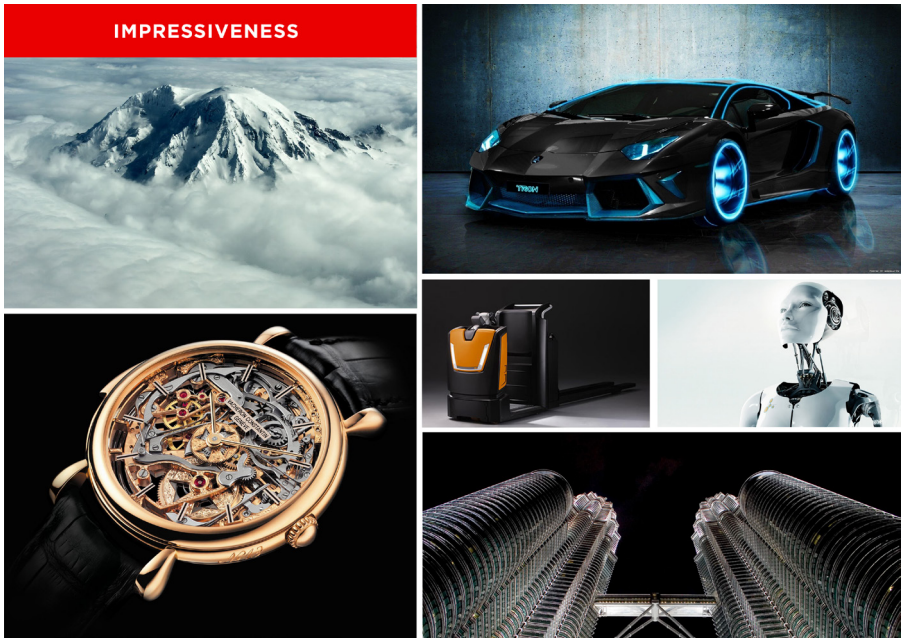


Figure 3.11
Impressiveness Mood Board

The attributes that communicate impressiveness were:

- Being State-of-the-Art
- Providing Sense of Quality
- Exceeding Expectations
- Being the Backbone of the Factory

Impressiveness-related elements that emerged during the workshop were:

- Monumental look of the multi-level systems
- Fully automated products
- Smoothness of movements
- Timeless & Futuristic design
- Integrity of design elements, having common product language
- Surprisingly easy usage of products
- Intuitive interfaces
- Designing systems that can react to operator's presence
- Finished outlook, well thought of design language on products
- Interactive lightings that inform operators about the system status
- Having systems with highlighted modules (which shows expandability)

Product features that are in line with this experience:
- Size of the multi-level systems
- Having the touch operator panel (impressive piece of design)
- Parts that move automatically, like stacker cranes and robots in systems

Product features that are NOT in line with this experience:
- Some products look like they are from the 90's
- Safety doors are poorly designed
- Systems lack luxurious features
- Systems should have more indicator lights for feedback
- It is difficult for Fastems to convince customers about the implementation of new visual features

3.3.1.3. Trust

Another selected experience used in the workshop was Trust. Building trust is a crucial element in every business, and its importance is even greater in a competitive business-to-business environment. By building trust, companies can acquire loyal customers. Furthermore, due to the fact that the lifecycle of Fastems multi-level systems are particularly long, it is even more critical to communicate trust with the customers in every moment of interaction. This experience focuses on the cumulative time span of user experience, which is formed over a longer period of time.

Figure 3.12

Trust Mood Board

The attributes that reflect what this experience stands for in the work context were:

- Fair play
- Reliability
- Long life
- Transparency

Important trust-related insights that emerged during the workshop were:

- Too much noise in systems has negative impact on Trust
- Products should have high quality
    No funny noises
    Professional look
    Perfectly aligned elements
- Operator should be able to see the system status, so he can “feel in control”
- Transparency (literally) in the systems creates trust as well
    But NOT everything should be transparent, some parts should not visible
- Worn out pieces (at an early life cycle of products) damages trust. Even if only the smallest parts are gone bad, they make the whole system look inferior
- Fastems’ long history is an important factor in building TRUST
- Maintenance manuals should list potential problems and high quality instructions for solutions

Product Features that are in line with this experience:
- Thoroughly specified contracts (fair play)
- Providing rock solid after sale services (reliability)
- Being able to go visit the other customers’ factories, before making the final buying decision creates trust. Fastems is transparent, you can check out the systems in other factories
- Our maintenance people know how to handle all kinds of situations. That looks professional and builds trust in the long term

Product Features that are NOT in line with this experience:
- Trust needs more than fundamental qualities. Good quality, good technical solutions we offer, is not always sufficient
- To cut down costs, more cost-efficient components are selected. However, Fastems has to be very careful to keep the quality high. Less reliable parts decrease trust
- Fastems does not contact customers unless it is very important. However, it should be done more often

3.3.1.4. Proudness

Proudness was the last experience used in the workshop. Fastems is proud of being one of the leaders in the market. To be able to sustain good relations with its customers, it is desired to make them feel proud of using Fastems products. As in trust, proudness focuses on the cumulative time span of user experience as well.

Figure 3.13
Proudness
Mood Board

The given attributes that communicate Proudness were:

- High Performance
- Flexibility
- Solving difficult problems
- Having control over work

Important insights that support proudness were:

- Having a piece of technology that competitors do NOT have
- Providing a community for the users – feeling of being a part of a group
- High quality in products, designing more “product-looking” systems
- “Visibility of movement” in the systems is important for customers. Light can do the trick to emphasize the motion
- Being sustainable
- Owning unique products
- Visible brand & product identity

    Once you enter a factory, even from a distance, you can say “this is Fastems!” (for visitors)

    While in the workplace, “yes I am working with a Fastems system!” (for operators)

    “I am proud of having Fastems in my portfolio” (for suppliers)
- Proudness is built on /closely related to TRUST

- Having well designed, good-looking products

    Well designed parts of the systems should not be hidden

    Products should have a common design language and share the common outlook

    High-tech feel of the products, yet still human

    Designs should have up-to-date look and feel
- Even in details, quality should be seen

Product features that are in line with this experience:
- Owning an FMS helps our customers differentiate from competitors and make them proud
- Offering complex solutions

    I am proud of owning a complex solution (for customers)

    I am proud of being able to work with complex systems (for operators)
- Owning a product that moves automatically, “Automatic movement in systems feels like magic!”
- Owning & operating a “high-tech” system makes you proud

- FMS is the “crown jewel” of the production line

Product features that are NOT in line with this experience:
- Common product outlook is missing, every project looks different
- Fastems brand does not arouse any strong feelings (feels like just another supplier)
- Some system parts are not in line with high-tech image, such as slow and noisy doors

3.3.2. Workshop Reflections

Results of this workshop proved that the chosen company-wide experience goals were well chosen, and only small adjustments are needed. Therefore, it was decided to continue the project with these four experiences, which will be utilized as a starting point in designing the concepts.

The final company-wide experience goals were:
- Flexibility for Differentiation
- Impressiveness for Attractiveness
- Trust for Loyalty
- Professionalism for Proudness

As you can see above, only small adjustments were made by adding two words to each experience, to make them more understandable phrases in the work context. This decision was made during the final part of the workshop, while reviewing the experiences.

Other than the ones mentioned before, there were also a number of rather important insights that arose during the discussion part of the workshop. Some of these insights were as follows:

- On multi-level systems, it is quite inconvenient and time-consuming to adjust the safety nettings in the corners of the systems. Therefore, new concept should offer solutions that deal with this problem. Corner elements should be well thought of.

- In order to create the feeling of connectedness between the user and the system, lights do play an important role. Informing the system status by using light indicators could be a good solution for that purpose.

- Especially in big systems, organizing cables is a relatively cumbersome process. Organizing those cables as a part of the concept would be worth investigating.

Each one of these insights proved to be very fruitful for the course of the concept development process. The way they are implemented will be explained more in detail in the following chapters.

3.4. Design Drivers

According to Wikberg and Keinonen (2002), design drivers facilitate the process of defining the main goals of a design without doing a very detailed analysis of requirements. These drivers are not just based on what has been discovered through user studies, literature review and/or research on similar products, but also on business strategy, design ideals and designer's intuition. At times, to be able to fulfil key drivers, some of the important user needs can be overlooked.

Design drivers can be seen as obstacles or limitations. However, they are great tools to get inspired by and can open up fresh possibilities when investigated properly. Following the design drivers might become challenging at times, but it is rewarding as well. All in all, challenges and limitations breed creativity.

A design driver can be truly anything that drives the decisions designers make during a project, and each of them influences the solution in one way or another. Since they are rather valuable tools to use during a project, setting these drivers correctly have utmost importance. To be able to come up with spot-on design drivers, I once again went through the prior research done about the Fastems brand. Following, I reviewed the company-wide experience goals and analysed the way that these experience goals were derived from the core of the company. Finally, by employing a similar approach, I converted the company-wide experience goals into design drivers.

Figure 3.14
Process of Defining the Design Drivers

As a result, the design drivers I selected were as follows:

Cost-effectiveness: Fastems is carrying out a business in a very competitive market, where customers are very cautious when it comes to paying more, especially for offerings that do not bring an obvious value via a new function. In other words, if there is no return of investment soon, it is harder to convince customers to pay for it. The value of user experience in helping differentiate from the competitors has been becoming an important concern only recently. This issue is making customers less willing to pay for experiences.

Moreover, the products that are being dealt in this project (multi-level systems) are particularly big in size in most cases. Therefore, it is beneficial if the newly designed elements are cost-effective.

Attachability: New concepts should be easily implementable. Moreover, the new design elements should as well be attachable even to the products that are already installed in customers' factories. This is because of the fact that multi-level systems have a considerably long life-cycle, in some cases even up to 30 years. By attaching the new design elements to the already installed systems, new product identity can reach to a much bigger audience in a much shorter amount of time.

Scalability: Fastems has a substantially broad portfolio which includes wide range of products that look rather different from each other. Therefore, scalability can be seen as one of the most important design driver in this project. Each project is carried out for different clients that have different needs. In addition, each customer's factory environment is unique. Therefore, the new concepts have to be implementable to all product families and customizable for various customer

projects.

Identifiability: As explained in the scalability section, Fastems' portfolio includes wide variety of products that do not share a common identity. Thus, it is rather problematic to distinguish Fastems products from the competitors. This is the reason why the new visual product identity concepts that will be developed as a result of this thesis work should be identifiable as Fastems. When a person walks into a factory, even at first glance from the distance, the multi-level systems should be recognizable.

Connectedness: It is essential to make the operators feel connected to the products and systems that they use. Constant information exchange between the operators and the systems makes them feel competent in using the systems effectively, and therefore facilitates more trustful and enjoyable operating experience. This eventually leads to making operators feel proud of using Fastems systems.

3.5. Field Visits & MLS Pilot Case

Throughout the project, I had the opportunity to visit the case company premises several times. During these visits, I toured around the factory and the offices accompanied by a Fastems employee. The person chosen to guide me through the premises has always been someone who is well aware of the UXUS project, so that I would not have to go through a time-consuming introduction about the project every single time.

Factory visits were quite fruitful. I had the opportunity to see the environment where the systems are built and put together. Each time I visited, I had my camera with me in order to document what I saw. Besides, I was carrying my notebook and a pen to quickly take notes and make rough sketches. Roger Sanjek (1990) calls these notes "scratch notes". In these sorts of information-heavy interviews, trusting only on my memory would lead to missing important details. After all, judging at the spot what is a valuable insight and what is not is rather challenging.

On the other hand, my office visits did not prove as useful as I expected. I was hoping to make observations in the employee's working environments, see the way they get their work done behind the computers, using the existing guidelines and/or manuals. However, most meetings ended up being more or less only interviews.

Each time I left the field, I went through my notes and transcribed them into my computer during train rides back to Helsinki. After all, as Bernard suggested "the faster you write up your observation, the more details you can get down" (Bernard, 2011). These transcribed information included all the related and potentially valuable data that I gathered during the visit, such as photos of the manufacturing machines, insights mentioned during the conversation with the guide etc.

One downfall worth mentioning here is that I never got to see a real multi-level system working in a factory environment. To be able to do that, contacting customers of the case company to organize a visit would have been necessary. With this visit, I could better grasp the functionality of the systems. However, I could not manage to arrange such a visit. On the other hand, this issue did not become a big obstacle for my concept development process, because of the fact that my task is not to go too deep into product design, but rather to focus on finding ways to extract experience goals and coming up with ways to implement them while designing the systems. Therefore, my research and data gathered along the way was enough for me to pursue my goal in this thesis.

Before starting the actual concept development process, I had the opportunity to visit the factory of the case company one more time, to be able to study the multi-level systems in detail. They have been running a pilot case in their factory environment, to demonstrate the capabilities of their systems to their visitors. It is basically a full size working demo product. Thanks to this session, I gained much deeper understanding about the multi-level systems.

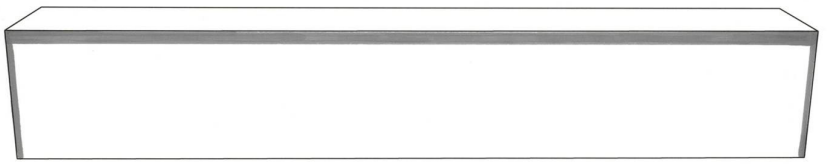
3.6. 1-to-1 Co-design Sessions

The distance between the future users of a product or a service and designers has never been closer (Sanders &Stappers, 2008). Thanks to methods like co-design, designers and other stakeholders are encouraged to have stimulating dialogues to be able to take part in a collective creation process (Vaajakallio et al., 2009). In this project, once the interviews and workshops are conducted, a number of co-design sessions are organized with the key users of the styleguide.

Once all the information was on the table to be processed, I started working on the initial concept development process. At first I did a brainstorming session, and plenty of sketches in order to come up with a number of design features that are in line with the previously defined design drivers.

As it can be seen in the sketches, my initial ideas were concentrating on framing the multi-level system, so that its size would be defined and emphasized. Without a frame, it is rather challenging to estimate where the system begins and ends, due to its unidentifiable form. There is a wide variety of ways to frame the system. However, the design driver 'cost-effectiveness' made me focus mainly on the minimalistic solutions, that can be easily manufactured and installed. These solutions would also be in line with the 'scalability' design driver, due to their easy implementation to variety of different systems.

Framing could be done by outlining the whole system, or just by highlighting the corners.



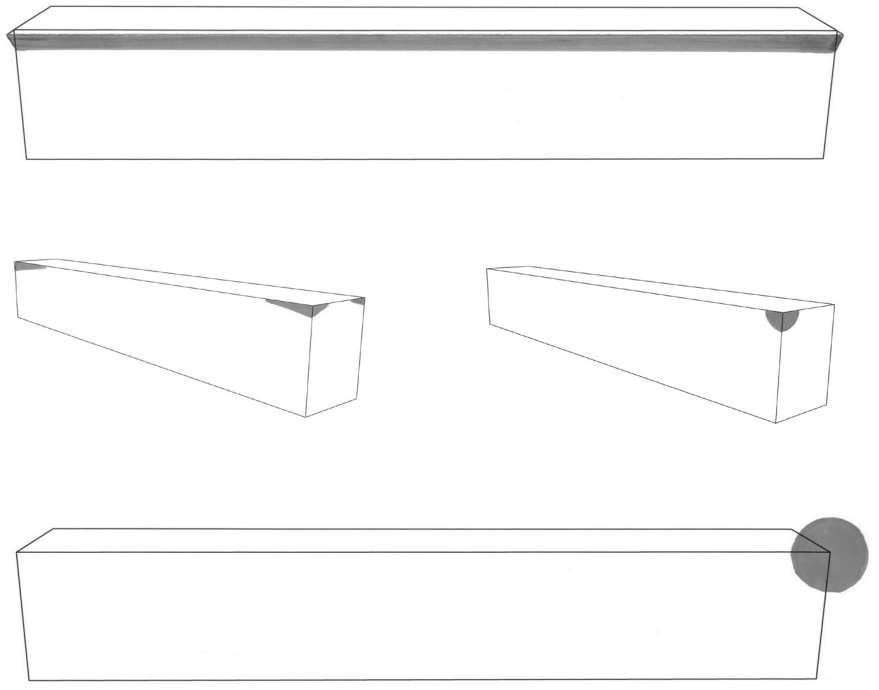
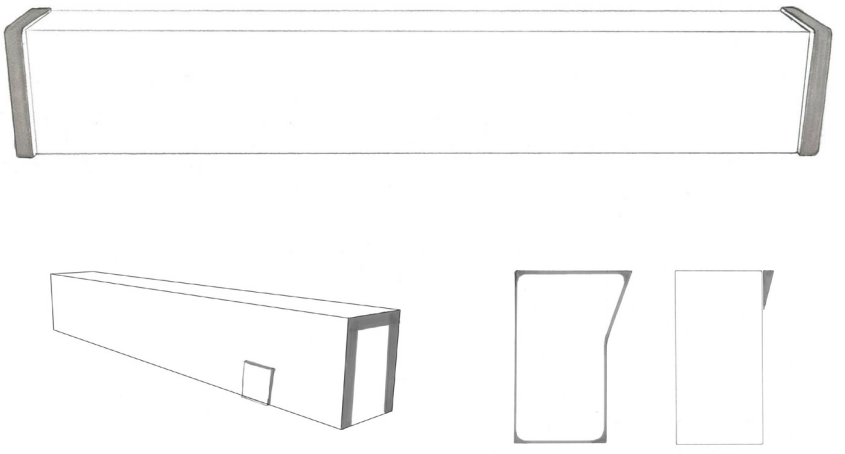
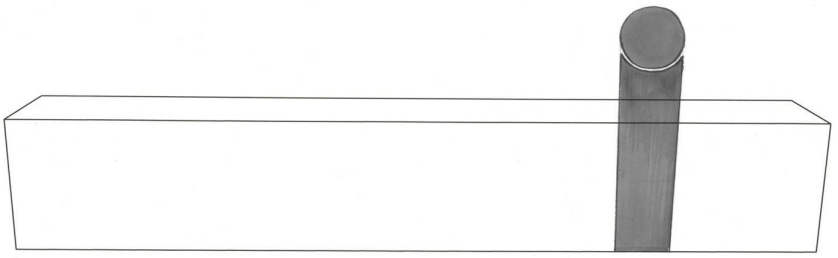


Figure 3.15
Ideation Sketches

Focusing only on the sides of the system could also create the framing effect.



Stand-alone solutions could make the systems identifiable in a very cost-effective manner as well.



After thorough investigation, I discussed these concept proposals with my supervisor and revised them according to the feedback I received. Afterwards, I was off to meet a number of employees to see what they feel about the concepts. These employees are chosen since they are considered as potential lead users of the styleguide. As Urban and Von Hippel (1988) mentioned that the current needs of the lead users which are present at the moment will later prove its importance and become general in a marketplace. Therefore, it is crucial to involve these users in the development process.

In total, four in person meetings were organized with the employees who are closely involved in designing the systems. These employees were:

1 R&D Specialist
1 Project Manager
1 Layout Designer
1 Design Engineer

I chose these employees as key users, because they will be the first ones to use the styleguide and play an important role in encouraging others to get involved.

Each session was significantly useful and provided with ideas from different perspectives. For instance, the session with the design engineer was very feasibility

oriented, more or less focused on how the concepts can be implemented etc. On the other hand, the session with the layout designer gave me a completely different perspective. His job, to put it simply, is to figure out efficient ways to position the systems in customers' factories. After talking to him, I once again realized the vast amount of flexibility the case company provides to its customers, and recognized the scalability issues that come with it. Since variations are so many, there are plenty of design limitations that need to be kept in mind. To name a few:

- The design elements cannot be all the way on top of the multi-level systems, because mostly products are as high as to reach the factory ceiling. Therefore, if you design that way, designed elements would be hidden up high, in the shadows.
- The design elements cannot be placed lower than 3 meters, or else they would be blocked by the machine tools. Furthermore, customers put a lot of tools and materials near the storage unit, which would cover the design elements.
- It is not ideal to design elements which are placed on the sides of the systems. In most cases, there is only half safety netting (from ground to 3 meter height) on the sides. Moreover, sides are mostly positioned very close to the factory walls. There is no point in designing new identity elements and hiding them behind the walls.

3.7 Overview of the Final Concepts

As Rittel and Webber (1973, p. 164) considered, "part of the art of dealing with wicked problems is in the act of not knowing too early which type of solution to apply". Following this statement, I first played around with ideas to acquire deeper understanding about the problems and limitations, rather than trying to discover the ultimate solution as early as possible. However, it should always be kept in mind that this process could continue forever and the concept could be improved continuously. At some point, final decisions had to be made to filter out some of the ideas (Lawson, 2006). Therefore, I narrowed down the number of concepts ideas into two.

First Concept

In this concept, visual elements are only used on the front side of the system. To emphasize the size of the system, a visual element is placed along the front side. There are three important reasons why it is placed around the middle of the system. Firstly, if it was all the way on top, visibility would drastically decrease. Secondly, by placing it in the middle, I had the opportunity to hide the messy cables - these cables connect the machine tools to the main control unit - behind the visual element. Thirdly, lighting units, which give feedback to the operators about the system status, could be placed above the stations.

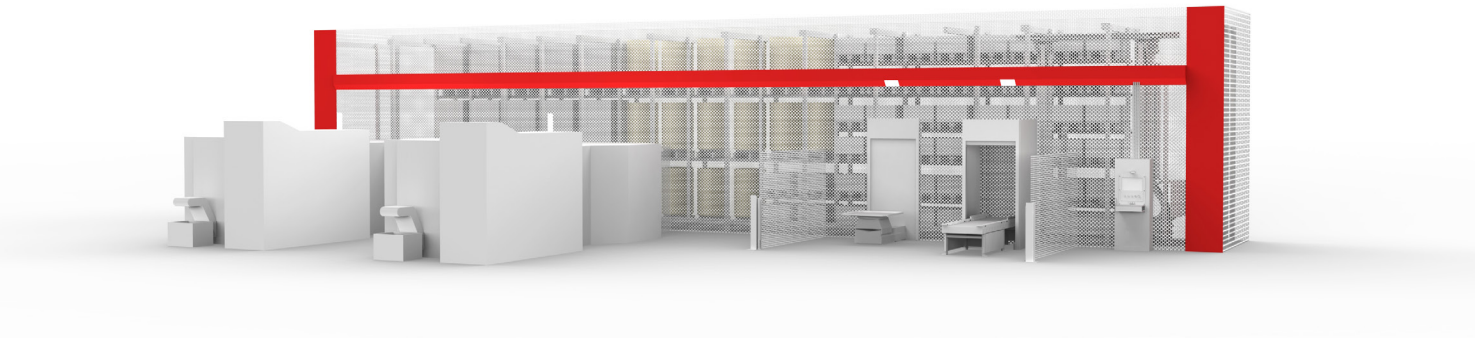
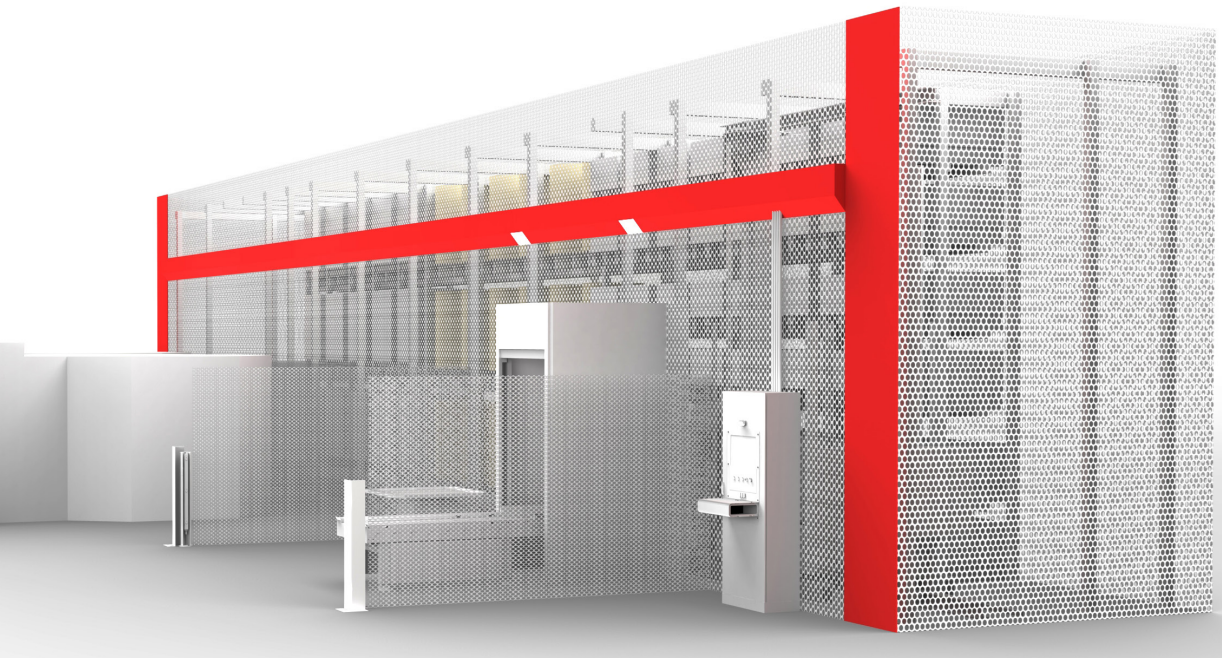
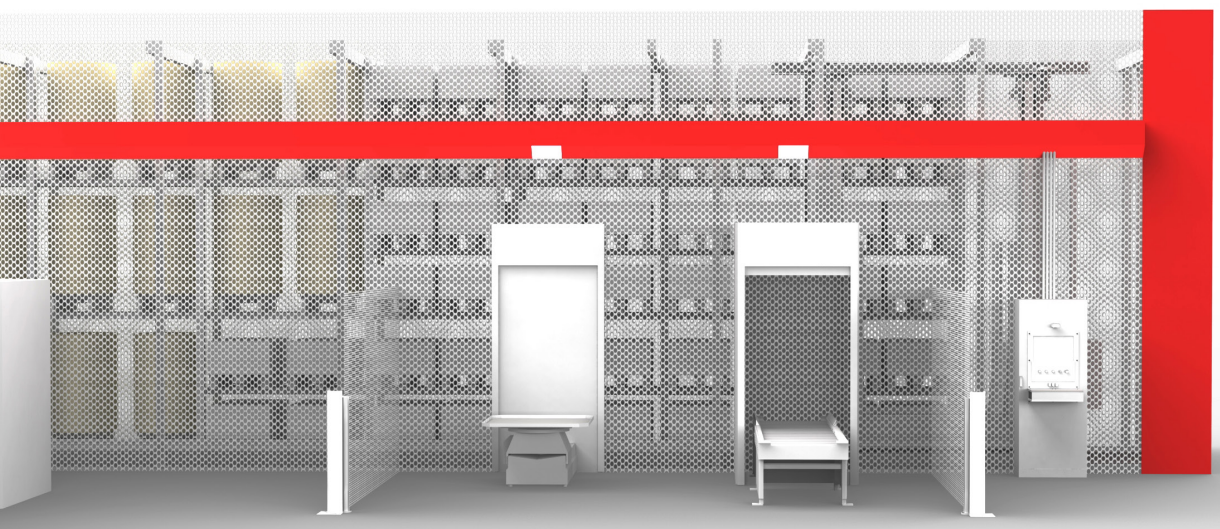


Figure 3.16

3D Renders of the Final Concept 1





Second Concept

In this concept, visual elements are placed on the corners, to create the desired framing effect. Also, these elements are repeated in the loading cell area. The reason behind repeating the elements is to direct the attention to the area where most of the interaction takes place.

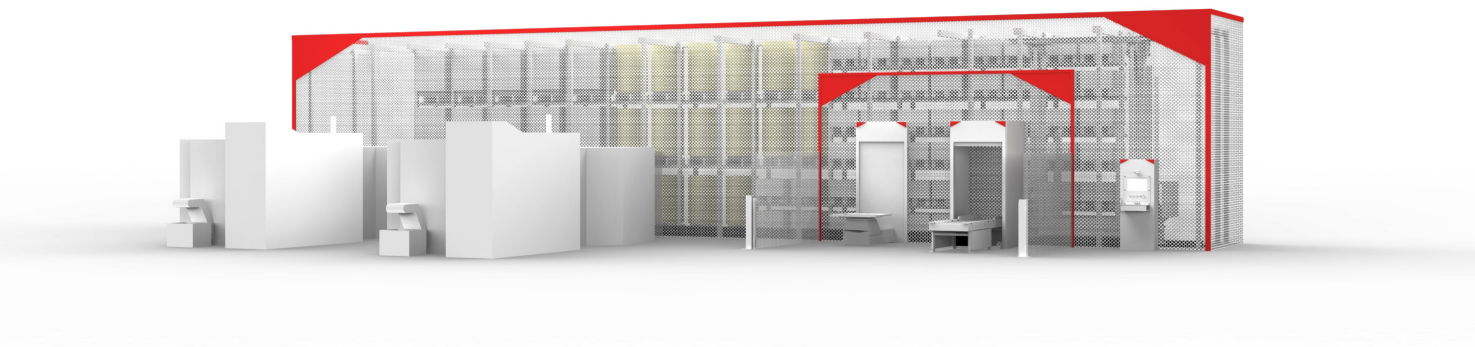
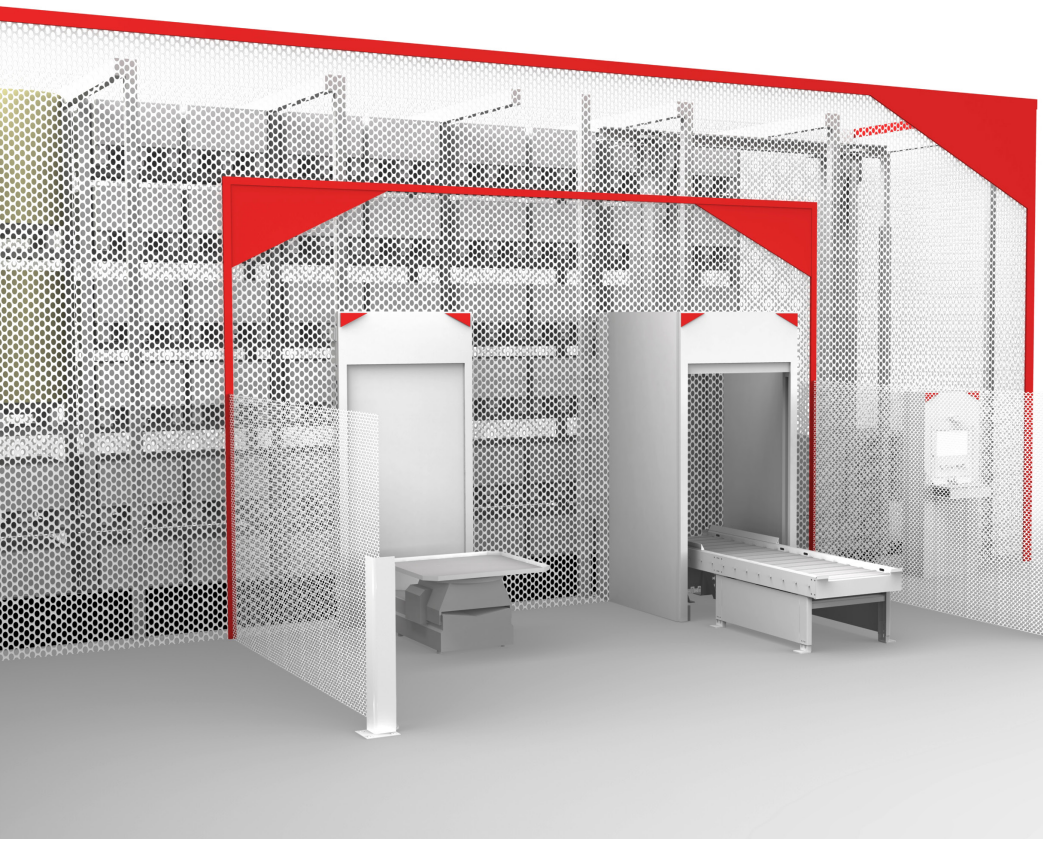
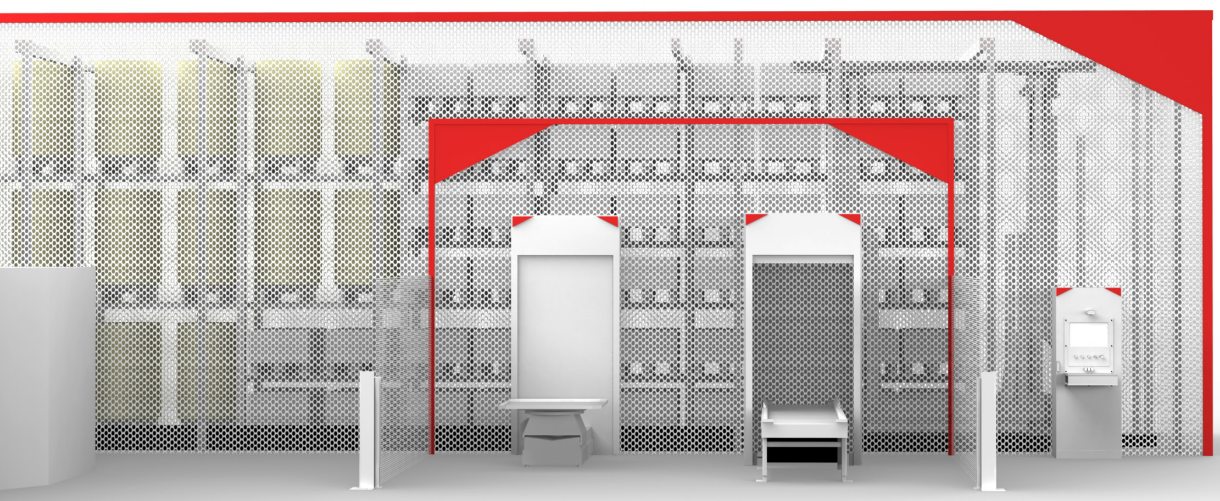


Figure 3.17

3D Renders of the Final Concept 2





4. EVALUATION

The main goal of the user experience evaluation is to check whether the product development is on the right track and to guarantee that the best design alternative is selected (Vermeeren et al., 2010). Therefore, as one of the final stages of this project, two developed concepts were evaluated. In this chapter, methods used and the results will be illustrated.

As Roto et al. (2009) expressed, on a user experience-driven project, the concepts should be evaluated as a part of the product development process. In the industry, however, product development process is rather hectic and the resources allocated for the evaluation can often be insufficient. Therefore, conducting the evaluation sessions early, and if possible, repeatedly is highly recommended to make the most of the resources. (Väänänen-Vainio-Mattila et al., 2009). Accordingly, the evaluation session was scheduled for right after the initial concept development phase, so that the changes and updates can still be made within the time frame of the project.

There is an important factor that needs to be considered when conducting a user experience evaluation. Evaluating with just design concepts on paper may present more challenges than evaluating products that have been in the market for several months (Roto et al., 2009). The main reason behind this situation is that users have difficulties visualising the concepts on paper and giving feedback to something that they have not yet experienced (Matthing et al., 2004). However, evaluation

of the anticipated experience can still be done even when there is not a physical product for users to get their hands on, by helping users to envision the interaction in their own work context (Roto et al., 2009). Thus, detailed visualizations should be prepared in order to clearly communicate the concepts and the features in the evaluation.

As a method, due to its certain advantages, online survey was preferred. The details of the survey will be explained in the following section.

Along with the online survey, experience prototyping could have proved useful, since it establishes an environment where users can engage with the product and/or service directly. (Buchenau & Suri, 2000). By means of making a prototype of a multi-level system and the experiences that the new concept offers, design features could have been evaluated more effectively. However, due to the difficulty of building a full-size prototype, experience prototyping idea was abandoned.

4.1. Online Survey

Survey is a simple data gathering tool that generally consists of a set of questions. It is used to get feedback from the participants about their preferences and opinions on a specific subject. It has been a valuable tool for researchers for a relatively long time and has been evolving in the last decades thanks to technological advancements, such as internet (Evans & Mathur, 2005). Conducting surveys online helps researchers get rid of the necessity of physically distributing questionnaires, not to mention transcribing each received survey manually (Schmidt, 1997). Furthermore, online survey has a number of other advantages, which made me decide to employ it in this research study. To name a few of these main strengths of online surveys:

- Global reach

Internet allows researchers to reach participants all over the globe instantly.

- Flexibility

Online surveys are notably easier to create, adjust and tailor to the customers' needs.

- Time efficiency

Online survey can be administered in a time-efficient manner and it gives researchers the ability to simultaneously reach people from different parts of the world.

- Low costs / Affordability

Since there is no need for physically publishing and distributing questionnaires, it costs less.

- Convenience

Respondents can answer the questions at any time they want and can take as much time as they need.

- Ease of data analysis

Thanks to the advanced survey tools, results can be automatically organized according to themes for researcher to analyse more easily.

- Question diversity

Online survey provides many different types of questions, including multi-choice questions, semantic differential scales, open-ended questions etc. (Evans & Mathur, 2005).

The main objective of this online survey was to decide which concepts and product features are valuable enough to be further developed. Therefore, it was divided into 4 sections. On the first two sections, design concepts were portrayed with detailed descriptions of the design features.

Following each concept, semantic differentials tool was utilized to evaluate the experiential aspects of these concepts. This tool will be explained in detail in the following section.

On the third section, participants were then asked to make selections between the two design concepts, and three colour alternatives for the visual design elements. These alternatives were red (Pantone solid coated, 185 C / RAL 3018), anthracite grey (Pantone solid coated 432 C / RAL 7016), and light blue (Pantone solid coated 306 C / RAL 5012). Also, as in the previous parts, additional comments box were placed at the end of the section, to be able to collect more in-depth insights about the participants' choices.

Lastly, on the fourth section, participants were asked to put their demographic information, such as department name, geographic location, gender and age group.

Figure 4.1
Concept Colour Alternatives in the Evaluation

Before distributing the survey to its real audience, a test run was made with a couple of fellow researchers, in order to detect problems and faulty applications before they cause any problems.

The survey was distributed internally to all the Fastems employees around the world via email. As a result, total number of 57 people participated in the survey. Majority of the respondents were from Finland (41) and Central Europe (8). There were also a number of respondents from North America (3), Asia (1) and other countries (4).

4.1.1. Semantic Differentials

Semantic differential scale is a tool designed for measuring attributes and meanings of objects, services, and concepts. This tool provides a number of seven-step items whose poles consist of opposite attribute pairs (such as anonymous – identifiable, inviting – repellent etc.). In this survey, it was utilized in order to gather insights on participants' feelings about the concepts.

Initially, it was decided to utilize the AttrakDiff tool, in order to assess both pragmatic and the hedonic side of the concepts (Hassenzahl, 2003). However, AttrakDiff tool consists of 28 specific attribute pairs, and these pairs were not suitable for this study. Therefore, it was decided not to utilize AttrakDiff, and define 12 new bipolar attribute pairs instead. It can be noticed that these pairs originally derived from the company-wide experience goals, and can be classified as attributes of these experiences that are easier to measure.

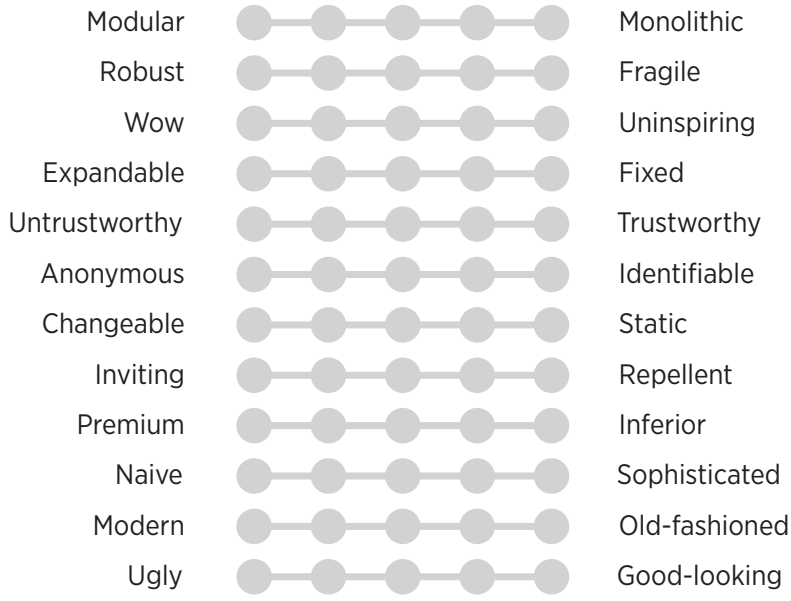


Figure 4.2
Semantic Differentials Scale with 12 Attribute Pairs.

It is important to note here that the order of the attribute pairs in the survey was organized randomly, to be able to get more authentic and unbiased results.

4.2. Results

First Concept

First concept was well-received by the respondents. Firstly, semantic differentials scale results showed that it communicated almost all the experience attributes positively, except “Modular” and “Changeable”. Secondly, there were a significant amount of positive comments about the concept. Some of these comments can be seen below:

(+) “The status lights can be a hit if properly designed.”
(+) “If there is a horizontal system-length visual marker, it is good that it is not in the roof level. It can be better seen at this height.”

(+) “It is good that the visual marker does not prohibit users looking inside of the system.”
(+) “Side covers are a must; easy to implement, and they create a great effect.”
(+) “Coloured sheet metal plates look great. They make the system more product-like.”
(+) “It is nice looking, but hopefully no additional costs.”
(+) “Based on the visuals, the concept is surely better than the traditional multi-level systems (which really are looking just like metal cages). However, we need something more.”
(+) “Why don’t we integrate a status-light-line on top of every door? LED stripes with different colours are very easy to install and easy to handle.”

On the other hand, there were negative comments as well, such as:

(-) “Newly designed elements might be hard to keep clean in an industrial environment.”
(-) “This concept does not look very installation friendly. The visual effect plates need to be such that they can be installed by our storage installation team. This means that installation can take place in such phase of installation, when no electrical cables have yet been installed. Current suggestion looks like our most expensive men need to do the installation just before they leave home.”
(-) “If we need 2 or 3 more days to install the new elements, is it useful anymore? The main reason for our customer to buy a multi-level system is not the design! Even if it looks very nice.”
(-) “Probably this cable tray solution will increase the price, so it is not good.”
(-) “Lots of sheet metal would be needed if the whole cable tray is covered.”
(-) “It feels a bit weird that the horizontal system-length visual marker is not on top of the system.”

Second Concept

Second concept was not as successful as the first concept. Even though it did bring out positive experiential attributes, it could only outscore the first concept on two attributes, “Modular” and “Changeable”.

Some of the positive comments made for the second concept can be seen below:

(+) “Framing the loading station area is a good idea, since it is where the action happens.”
(+) “I really like it because it tells what is important in the system at a glance.”
(+) “Coloured corners are not so great but the idea of emphasizing the loading station area from the entire system is very good. This in combination with the first concept might create a killer combo!”

The negative comments were:

(-) “In my opinion this concept does not feel natural, meaning that the design elements seem a bit forced.”
(-) “On systems with high storage units, the visual elements on top of the system might not be seen.”
(-) “The corner details make the system look less expendable.”
(-) “Since there is no functionality, it feels odd to add these elements to a multi-level system.”
(-) “This concept looks too simple, too uninspired.”

As a result of the concept comparison part, it was clear that the first concept was much more popular than the second. While the first concept was selected by 45 participants, the second one received only 12 votes.

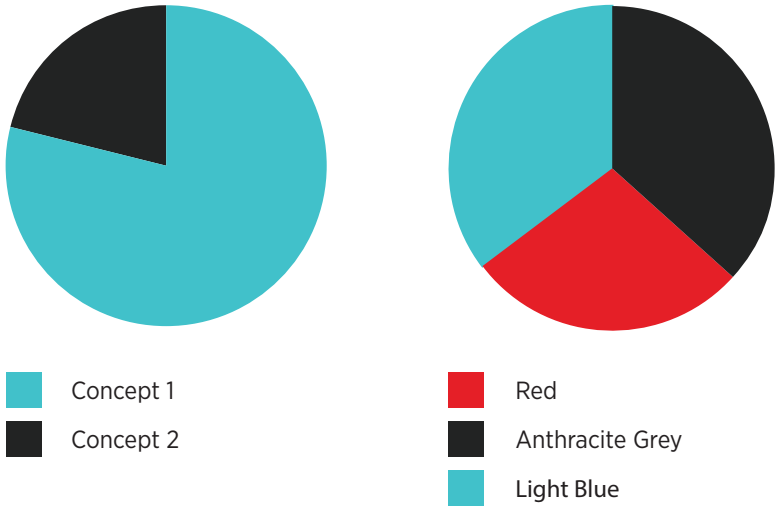


Figure 4.3
Evaluation Results: Concept Comparison on the Left, Concept Colour Comparison on the Right Chart.

However, the colour comparison results were rather a tie. While “light blue” had the most votes (21), “anthracite grey” took only one vote less (20). Lastly, “red” was chosen by 16 participants as their favourite. Some colour selection related comments:

- “The grey colour gives more relaxing feeling. The red one is screaming out a bit.”
- “We should offer more colour options to our customers.”
- “The colour grey is stylish but does not pop up from the view as the Blue one does.”
- “Multi-level systems are tailor-made for customers, so why can’t they choose the colours as well?”
- “This red colour is a very bold and alarming, blue on the other hand is reassuring and calm. We can place the red logo somewhere, and that would be enough ‘brand colour’.”
- “Dark grey option fits well in to somehow dusty processing environments. However, systems should stand out from their surroundings.”

As a result of semantic differentials, it can be seen that the first concept was appreciated more, but failed to communicate the sense modularity and changeability.

4.3. Evaluation Discussion

Evaluation results were well received by the case company. It was decided that the findings from the survey can be implemented on further research and upcoming product development projects.

Aspects that could have been handled better in the evaluation:

- According to the evaluation results, it can be noticed that the 2nd concept could have been improved. The aim of this concept was to demonstrate the idea of “framing the system with corner details” and “putting the emphasis on the loading cell area”. However, fine renderings of the concept can lead participants to think that the presented forms - triangular plates in the system corners - are, in fact, the

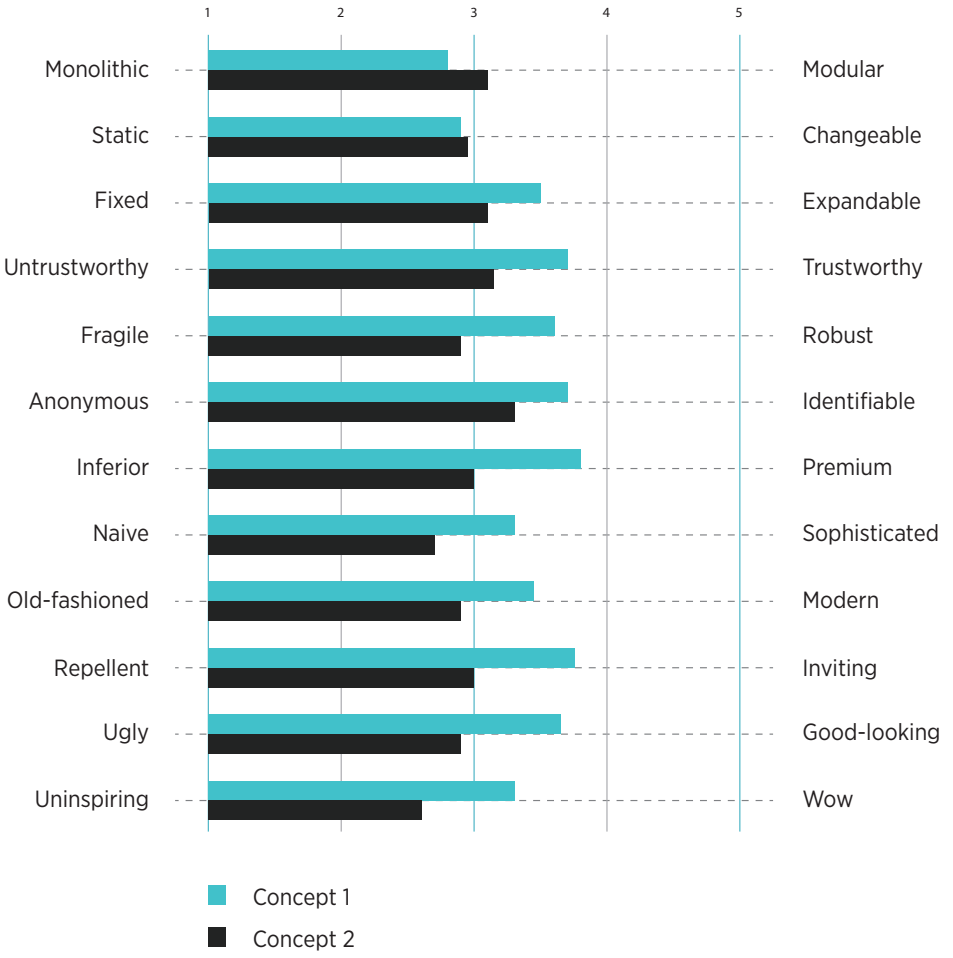


Figure 4.4
Semantic Differentials Results

final design. Therefore, the fact that these visualizations only represent the ideas behind the concepts (such as 'using corner elements to emphasize expandability', or 'covering cable tray with sheet metal for more organized outlook') should be clearly communicated with the participants.

- There were a couple of comments that read: "It is difficult to evaluate the concepts without evaluating the colour". In the evaluation, new design features were visualized in red colour (Fastems brand colour). The main reason behind this decision was to draw attention to the elements of the new concept. However, whilst going through the evaluation results, it was found out that the participants'

opinions and feelings about the concepts might have been affected by the colour itself. Thus, a less 'bold' colour could have been chosen, such as dark grey (3rd colour option in the survey).

- It should be clearly communicated with the participants that these concepts represent possible solutions and directions for further development, rather than final designs. Finished-looking renderings of the concepts might confuse respondents and raise questions related to the minor details. For that reason, more sketch-like visualisations might be good to use.

- There was a comment saying: "I hope the round holed safety netting is just for illustration purposes". Once again, detailed visualizations make participants think that every element in the visuals is final, even though some are there just to represent an already existing part of the system. Therefore, it was learnt that every decision has to be carefully made and the parts that have the potential of being confusing for the participants should be adjusted or removed.

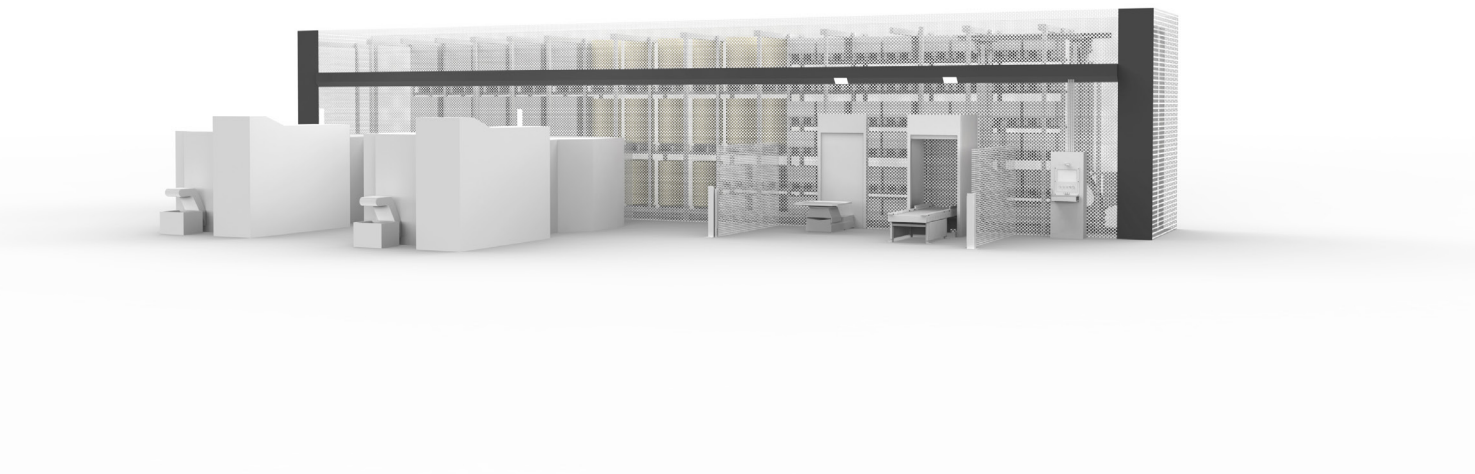
- In the comments section, some participants were asking about the placement of the Fastems logo. Although we had a related discussion about the logo before the evaluation, it was decided not to show it in the evaluation. To avoid misunderstandings, the reasons behind the decision of not utilizing the logo in the visualizations could have been communicated with the participants.

- The reasons behind design decisions (why cable tray solution is useful, why use side covers etc.) should have been communicated better. Thus, participants could have understood the reasons behind the design choices better. For instance, 1st concept becomes significantly more valuable in the eyes of the participants when they know that covering the cable tray is the most practical (as well as functional) way of making the systems identifiable.

At this stage, it is worth mentioning that another online survey that will be sent only to the customers of the case company is also prepared. These aspects mentioned above are corrected in this new version of the survey. However, due to lack of time needed for data collection and analysis, that survey is not a part of this

thesis work and will be carried out by the case company in the future.

As a result of the evaluation and the following discussion with the case company, the first concept with anthracite gray visual elements was chosen to be used in the next survey with customers.



5. CONCLUSION

This chapter will revisit the research objectives, summarize the findings of the desk research and offer conclusions based on those findings. The previous concept development chapter, which gives detailed description of the development process of the visual product identity concepts, will be summarized. Recommendations for future research will be discussed, in terms of how to progress this study. By adopting this structure, it is intended that the research work will be concluded so as to reflect on whether or not the objectives stated at the start of this research have been met.

Introduction chapter of the study opened with an analysis of the current situation in the business-to-business environments, stating that each passing year it is becoming more saturated with similar products and services, and therefore different means of differentiation is needed. Also the observation about the shift from an industrially driven economy towards a people-driven one, where consumers are on the focus of all actions, was presented. At the end of the chapter, research objectives were laid out. The overall aim of this thesis work was to investigate ways to develop visual product identity concepts with a participatory design approach. In fact, in the beginning of the project, the initial research objective was broader. It attempted to develop a user experience styleguide, which provides guidance on designing products and sharing good examples on what user experience could mean in practise. However, it was soon realized that

accomplishing this objective would not be possible within the given time frame. Therefore, the objective was narrowed down to developing visual product identity concepts, which would be the initial step towards developing the user experience styleguide in the future. Throughout the project, in order to fulfil the objective, major attention was paid to employing participatory design approach to involve the case company employees, so they feel responsible and motivated to take action during the development process.

This study relied upon a literature review that focused on two main topics, user experience and style. Moreover, it presented a case study that is conducted with a Finnish flexible manufacturing systems supplier company, to investigate the styleguide development opportunities with a user experience design approach. Empirical research for the case study mainly involved qualitative methods, attempting to discern the meaning of using identity guidelines when designing products in a business-to-business environment. This required conducting several in-depth interviews, workshops, field visits and co-design sessions.

Six in-depth interviews were held in order to gain a broader understanding in the case company. Each session was voice recorded. After the interviews, recordings were transcribed and analysed. This analysis was then used while building an affinity diagram which was later used in the first workshop. The main goal of the first workshop was to gather insights on three main categories; content, format and the main users of the styleguide. As a result, it was discovered that the scope of this project would have been too broad to be managed within the given time frame. Therefore, it was decided to narrow down the topic and only focus on the content category. Within a month, another participatory workshop was conducted with the employees of the case company. In this workshop, the objective was to evaluate the company-wide experience goals that were selected in advance by the author. These experiences were flexibility, impressiveness, proudness and trust. Finally, participants agreed on continuing the project with these experiences. As a result of this workshop, by illustrating means of deriving company-wide experience goals, the first research question (How can company-wide experience goals be derived?) was answered.

Furthermore, the case company premises in Tampere was visited a number of times throughout the project. These field visits provided opportunities to gather firsthand insights about the factory and the office environments.

Through conducting co-design sessions, two visual product identity concepts were developed. These sessions were conducted one-to-one, with six potential key users of the styleguide. During each session, initial concepts were critically assessed, and further developed in collaboration. Once two final concepts were designed, an online survey was conducted with the case company employees all over the world. In the survey, both hedonic and pragmatic attributes of the concepts were evaluated by using a semantic differentials tool. Moreover, the participants were asked to make a comparison between two concepts. The findings from the evaluation demonstrated that the company-wide experience goals can be communicated via the new visual product identity. Thus, the second research question (How can the company-wide experience goals be communicated via the new visual product identity?) was answered.

Limitations

One important limitation in this project was that perspectives of the case company's customers have not been explored, mainly due to time-constraints. In the given timeframe, it was not possible to get customers involved both in concept development and evaluation processes. Such empirical data could have added further richness to the study. However, involving customers possibly would have made the workload unmanageable.

Another limitation was that, throughout the project, it was only possible to visit the Fastems factory and see a demonstrative pilot case of a multi-level system. Even though this was remarkably helpful already, seeing a real working system in an actual factory environment would have proved more useful, to better understand how it is used, positioned, taken care of in the factory.

One caveat worth mentioning in this study is that the conclusions are based on a review of related literature and a case study, which was done in collaboration

with a business-to-business company. It would not be wise to generalize that the conclusions in this research automatically applies to all other companies in different markets etc. Instead, this research is appealing to the concept of relatability. Therefore, what was researched in this study will be of interest to other researchers and institutions interested in gaining insights on visual product identity development process. Furthermore, it will incrementally add to the patchwork of research in user experience design in business-to-business environments.

Recommendations for Further Research

As a result of this study, it was found out that there are areas that could benefit further research. Firstly, another study could focus on areas that were briefly investigated during the first workshop I conducted. Initially, the user experience styleguide development project was comprised of three major parts, which were 'content, format and main users'. However, it was soon realized that handling these three parts within the given time frame would not be manageable. Therefore, this study only focused on the 'content' part, specifically on developing visual product identity concepts. However, to facilitate and accelerate the implementation process of these concepts, the other two parts should be covered as well by further research.

Secondly, due to the same implementation concerns stated above, it would be wise to build the Brand DNA platform as early as possible, so that the visual product identity concepts can be implemented and start being used by the employees. However, during discussions with the case company, it was found out that building the Brand DNA platform is already a challenging task itself, especially designing its information architecture. Therefore, it would be recommended to conduct another participatory workshop to ideate on the platform development possibilities collaboratively. This would both accelerate the implementation process and help the case company continue with the same user experience design approach.

Lastly, evaluation part in this study was conducted only with the employees of the case company. However, investigating the opinions and perspectives of the customers could provide more insightful data. Therefore, it would be recommended

to run another online survey with the customers globally. The benefits of this recommendation for the case company would include the diversity in the survey feedback which would lead to more fruitful results; and the opportunity of gaining broader understanding about their brand image.

Self-reflection

This section presents my learning experience as the author of this thesis work. Throughout 2014, I have been mainly involved in this study, and it helped me develop both my academic and professional skills which without any doubt will be implemented in my future career. First and foremost, I was able develop my desk research skills as a result of conducting this study. Specifically during literature review, I have learnt to prioritize the vast amount of gathered data, as well as to critically analyse the ones that are closely related to my topic. Secondly, alongside the desk research skills, I acquired valuable empirical research skills, by utilizing a number of methods such as affinity diagram, in-depth interview, survey, co-design etc. Thirdly, I greatly improved my time-management skills thanks to this research experience. Each stage of the study required extensive preparation and planning, and without being organized and dedicated, this study could have been a disaster. Last but not least, my self-confidence increased significantly as a result of conducting this research project. I believe the future will offer great opportunities for the hybrid researcher/designers. By developing my skills in the research area, now I feel more competent about starting my professional career.

As an advice to other students working on their thesis studies, I would like to suggest that earlier you focus and narrow down your topic, the better it is for the success of your final work. Although you probably have received a similar suggestion from your supervisor already, I still would like to stress the importance of it one more time.

This research work has been remarkably enjoyable and worthwhile for me. Even though it investigated a small aspect of user experience and style, I am pleased to contribute a statement to the ongoing discussion about the implementation and benefits of employing such an approach. I am encouraged to see how the results of

this work will be taken further by the case company or other researchers. However, it would be wise to keep in mind that the research is a slow and deliberate process, and the outcomes from this kind of research studies may not have any significant impact on other researchers and institutions immediately. As Professor Richard Sennett (1998, p. 96) observed, “It takes institutions a long time to digest the technologies they ingest.” Nevertheless, I am motivated to enter the field with awareness that user experience design approach can help companies enhance their practices. I hope that there will be more collaboration projects like UXUS in the future, which brings research institutions and company together to improve the industry.

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